NATIONAL PETROLEUM RESERVE IN ALASKA

HISTORY
OF
DRILLING OPERATIONS

U. S. NAVY

WEST FISH CREEK NO. 1

HUSKY OIL NPR OPERATIONS, INC. Prepared by: Drilling Department Edited by: S. L. Hewitt

For the

U. S. GEOLOGICAL SURVEY Office of the National Petroleum Reserve in Alaska Department of the Interior SEPTEMBER, 1982

TABLE OF CONTENTS

<u> </u>	age
NTRODUCTION	1
ORILLING SUMMARY	2
OVERNMENT FORMS AND REPORTS Notice of Intent to Drill	5 6 7
OCATION DATA As Staked Location Plat	9 10
ORILLING DATA Operations History Drilling Time Analysis Drilling Time Curve Drilling Mud Record Bit Record	11 22 31 32 38
ASING DATA Introduction Casing Tally Summary 13-3/8" Casing Casing Tally 13-3/8" Casing Casing Cement Job 13-3/8" Casing Casing Tally Summary 9-5/8" Casing Casing Tally 9-5/8" Casing Casing Cement Job 9-5/8" Casing	39 41 42 44 46 48 53
OMPLETION DATA Wellbore Schematic	55 56
PPENDIX NO. 1 - Rig Inventory	I - 1
PPENDIX NO. - Meteorological Data	1 - 1
LIST OF FIGURES	
igure 1, Well Location Map	1

WEST FISH CREEK NO. 1

INTRODUCTION

The U. S. Navy West Fish Creek No. 1 is located in the National Petroleum Reserve in Alaska, formerly the Naval Petroleum Reserve No. 4 (Figure 1). The well is located 934 feet from the north line and 2033 feet from the east line of protracted Section 11, Township 11 North, Range 1 West, Umiat Meridian (Latitude: $70^{\circ}19'35.99''$ North; Longitude: $152^{\circ}03'38.03''$ West). Alaska State Plane Coordinates are X = 739,124 and Y = 5,972,858, Zone 5. Drilling related operations started with rig up on February 1, 1977, and terminated on May 4, 1977.

The well was drilled to a total depth of 11,427'. The primary objectives of the well were the Kuparuk River Sandstone, the Sadlerochit Group, and the Lisburne Group, with secondary interests in the Sag River Sandstone and the basal Torok sand. At the conclusion of the drilling and evaluation operations, the well was plugged and abandoned with cement and mechanical plugs set at selected intervals.

Husky Oil NPR Operations, Inc. supervised and directed the drilling and support operations as prime contractor to the Navy. Parco, Inc. was the drilling contractor. Parco Rig 96, a National 130, was used to drill the well.

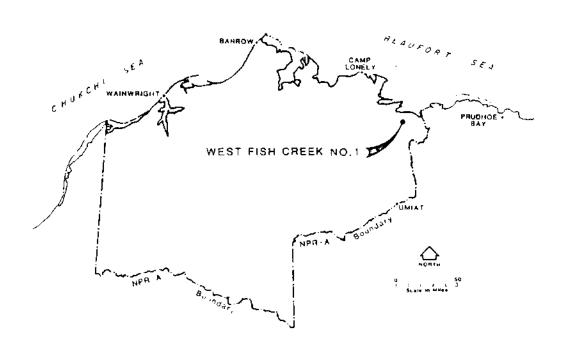


FIGURE 1 - WELL LOCATION MAP - WEST FISH CREEK NO. 1

DRILLING SUMMARY

Field operations at the West Fish Creek No. 1 location started on January 1, 1977, with the mobilization of construction crews and equipment required to build the drilling pad and an ice airstrip to accommodate C-130 Hercules aircraft. Construction work was completed on January 29, 1977, and the crews and some of the equipment moved to another location. Some construction equipment was stored on the location.

Rig move-in operations began on January 20, 1977. The rig, Parco 96, had been moved to Deadhorse by Rolligon from Mobil Oil's West Staines location. The move from Deadhorse was made with Hercules aircraft and completed in 15 days with a total of 105 loads. Rig-up operations began on February 1, 1977. Rig-up was completed in 14 days and the well spudded February 14, 1977, at 9:00 a.m. Weather conditions during the rig move and rig-up were generally good. However, three days were lost on the rig move due to blowing snow conditions.

During rig-up, a 20" conductor had been set at 104' and cemented with Permafrost cement. A 17-1/2" hole was drilled out below the 20" conductor to 2640'. The hole was logged from 1942' to the bottom of the conductor with the DIL/SP and the BHC-Sonic/GR log. Two attempts were made to get the logging tools to bottom with a conditioning trip in between, but the tools would not go below 1942'. After logging, 13-3/8" casing was run and landed at 2614'. The casing was then cemented with 2,800 sacks of Permafrost cement. After 2,400 sacks were pumped, returns were lost. The remaining 400 sacks were pumped with no returns. A top cement job of 200 sacks Permafrost cement was done through 1" pipe from 136' to surface.

The 13-5/8" split unihead and 13-5/8", 5,000 psi blowout preventer stack (SRRA arrangement) were installed. The 5,000 psi choke manifold and kill line were also installed. The 13-3/8" casing was tested to 2,500 psi and drilled out with a 12-1/4" bit. The formation was tested to a 0.64 psi/ft. gradient. A 12-1/4" hole was drilled from 2640' to 7597'. After testing blowout preventers, the blind and pipe rams on one side of the stack failed to open, requiring 20 hours to repair. After staging in the hole and conditioning, drilling was continued to 7863', where tight hole was encountered while tripping. After conditioning, drilling was continued to 8303', with minor drag on connections. After tripping at 8303', the bit hole had to be reamed to bottom during the last 180'. Drilling continued to 9068' with some tight hole and reaming on trips. The 12-1/4" hole was with the DIL/SP, BHC-Sonic/GR, FDC/CNL/CAL/GR HDT-Dipmeter. Sixty-six sidewall cores were attempted and 35 recovered.

Drilling was resumed to 9270', and while tripping out the drill string stuck at 8922'. After working the pipe and jarring, a drill collar pin pulled out. Two 6-1/4" drill collars were recovered. Fishing operations began and required 45 hours to recover the fish. Another 59 hours were required to ream and condition the hole. A DIL/GR log was run from 9203' to 8860' but would not go below 9203'. After conditioning, 9-5/8" casing was run

to 9216'. Two FO cementers were run in the string and landed at 2396' and 2181' for use if Arctic Pack procedures became necessary. While circulating the casing, returns were lost. The 9-5/8" casing was cemented with 1,066 sacks of Class "G" cement containing friction reducer and retarder. There were no returns during the cement job. The casing was cleaned out to 9096' and tested to 3,000 psi. A CBL/VDL/CCL/GR log was run to determine the quality of the cement job. The 9-5/8" casing was perforated at 9050' with five holes and a cement retainer run and set at 9000'. The 9-5/8" casing was squeeze cemented with 350 sacks of Class "G" cement containing friction reducer and retarder. The casing was cleaned out to 9190'. The perforations were tested to a 0.66 psi/ft. gradient. A second CBL/VDL/CCL/GR log was run to determine the effectiveness of the squeeze job. The 9-5/8" casing was cleaned out and the formation tested to 0.63 psi/ft. gradient.

An 8-1/2" hole was drilled to 10,193' where partial lost circulation occurred. Approximately 250 barrels of mud were lost. Drilling resumed to 11,427' total depth. The 8-1/2" hole was logged from 11,426' (logger's total depth) to the shoe of the 9-5/8" casing with the DIL/SP, BHC-Sonic/GR log, FDC/CNL/CAL/GR log, and HDT-Dipmeter. The Dipmeter and FDC/CNL/CAL/GR tools failed and had to be rerun. A velocity survey was also recorded. Thirty sidewall cores were attempted and 18 were recovered.

All logs were recovered on magnetic tape and computer log interpretations were prepared using Schlumberger's Synergetic Log System. A single shot deviation survey was run while drilling. The 17-1/2" hole was drilled "straight", with a maximum deviation of 3/4° at 630' and 2147'. While drilling the 12-1/4" hole, the hole remained straight to 5960' with maximum deviation of 1-1/4° at 2640' and 4250'. At 6600', deviation had increased to 4-1/4°, decreasing gradually to 1/2° at 8303'. The remaining 12-1/4" hole to 9216' remained straight. Maximum deviation of 3-1/2° in the 8-1/2" hole occurred at 9669'. The deviation decreased to 3/4° at 9954'; but at the final survey point of 11,235', it had increased to 1-1/2°.

At the conclusion of the log evaluation, a decision was made to plug and abandon the well. Cement plugs were placed across selected intervals in the 8-1/2" open hole as follows: Plug No. 1 from 10,539' to 10,339' with 70 sacks of Class "G"; Plug No. 2 from 9553' to 9343' with 70 sacks of Class "G"; Plug No. 3 from 9325' to 9125' with 70 sacks of Class "G" across the shoe of the 9-5/8" casing. A cement retainer was set at 8850' in the 9-5/8" casing and 25 sacks of Class "G" spotted on top.

The 9-5/8" casing was cut at 2465', recovering both FO cementers. A 13-3/8" cement retainer was set above the 9-5/8" stub at 2443'. Sixty-five sacks of Class "G" cement were squeezed below the retainer and 10 sacks spotted on top. The mud was then reversed out to water then diesel at 2343' to allow the well to be used in the USGS North Slope geothermal measurement program. The abandonment marker was set and the rig released April 27, 1977, at 12:00 noon. The rig was rigged down and stacked on location for the summer.

Detailed drilling information, in the form of bit records, mud summary, time analysis, and casing and cementing reports, is included in the body of the report.

NOTE: It should be noted that a number of presentations included in this report have failed to properly name this well; the "West" was dropped from the title. These are found on pages 5, 6, 9, 32, 33, 34, 35, 36, and 37.

Form 9-331 C (May 1963)	HNIT	ED STATES	SUBMIT IN 3 (Other instructions)	uetlons an	Porm approved. Budget Burgan No. 42-21425.	
		OF THE INTER!		,		
					S. LEAST DESIGNATION AND SERIAL NO.	
		GICAL SURVEY	<u> </u>		_N/A	
APPLICATION	Y FOR PERMIT T	O DRILL, DEEPER	N, OR PLUG	8ACK_	C. IF INDIAN, ALLOTTER OR TRISK NAME	
la, TIPE OF WORK		DEEPEN	PLUG BA	יטע 🗀	7. DATE AGRESHENT NAME	
b. TYPE OF WELL	LL X	DEEPEN [FEUG BA	·ux	N/A	
OII. (EE) 44	FLL OTHER	HING Roh:	LE NOLT	IPLE .	S. PARM OR LEADE MAMB	
2. NAME OF OPERATOR	FEE				Naval Petroleum Reserve	#4
Husky Oil NPR	Operations, Inc				9. WELL NO.	
3. ADDRESS OF OPERATOR					Fish Creek #1	
	t, Suite 600, A		9503		10. FIRLD AND POOL, OR WILDCAY	
4. LOCATION OF WELL (E.	eport location elearly and	In accordance with any Sta	te requirements.")		Wildcat	
x = 739,124.	y = 5,972,858.	Sec 11, T11N, R	lw.		II. BEC., I., E., M., OB BUX.	
Same	•				Sec 11, TllN, RlW	
14. DISTANCE IN MILES	AND DIRECTION FROM NEAD	SEET TOWN OR POST OFFICE			12. COUNTY DE PARIER 13. STATE	
121 miles East	and South of B	arrow			No. Slope Borough, Alask	ca
13. DISTANCE FROM PROPORTION TO NEAREST		16. No.	OF ACERS IN LEASE		OF ACERS ASSIGNED	
PROPERTY OR LEASE 1 (Also to Dearset drip	IND, FT. C	2,400' 23,6	80,000	N/A	•	
18. DISTANCE FROM PAGE TO NEAREST WELL, D	ORED LUCATION	1	CHED DEPTH		AT OR CABLE TOOLS	
OZ APPLIED FOR, ON TH		Rot	ary			
21. REEVATIONS (Show when	ether DF. RT. GR. stc.)	<u> </u>			22. APPROX. DATE WORK WILL START	
	10 (est).				February 1, 1977	
20.	Y	ROPOSED CASING AND	CRMENTING PROGR	RAM		
SIZE OF HOLE	SIZE OF CYRING	WEIGHT PER FOOT	SETTING DEFTH		QUANTITY OF CRIMENT	
26"	20"	133 (k-55)	80 1	To_sur	face w/Permafrost	
175"	13 3/8"	72 (ss=95)	2500'		face w/Permafrost	
12'ሩ"	9 5/8"	53.5 (sa-95)	8900'	I	s Class "G"	
8½"	711	32 (N~80)	Liner		us "G" to cover entire	
				ilne	r length.	

This form is being filed for information purposes only. Please refer to letter from Director, Naval Petroleum and Oil Shale Reserves, Serial #394, 27 August 1968.

Drilling Manager	DATE-
APPROVAL DATE	
OIL AND CAS SUPERVISOR	OCT 2 9 197
	OIL AND CAS SUPERVISOR

Form 10 - 401 REV + 1 - 71

STA	Œ	OF	ΑL	ASK	Α
-----	---	-----------	----	-----	---

	OIL AND GAS CONSERVATION COMMITTEE						
	PERM	N/A (4. LEASE DESIGNATION AND SERIAL NO.					
la. Tirs of Work	(CRIVI	⊢ _{N/A}					
DRILL 🖾 DEEPEN 🗆 T. IF INDIAN, ALLOTTEZ ON TRIBE NAME							
h. Type of wall,	048 🗂			elware - HV	ATIPLE (T)	N/A	
THUL S	WELL	<u>. </u>	I. UNIT FARM OR LEASE NAME				
Husky 011 NPR Operations, Inc. Naval Petroleum Reserve #4							
						Fish Creek #I	
# LOCATION OF W	otreet, Sul	te 600, Ancho	rage,	AK 99503		IN FIELD AND FOOL, OR WILDCAT	
At surface		A				Wildcat	
At proposed pre-	24. y = 5,9	972,858				II. SEC., T., R., M., (BOTTOM HOLE OBJECTIVE)	
Same	ILES AND DIRECT	T TEERAN MORE NO	OWN OR P	OST OFFICE:		Sec 11, TIIN, RIW	
		outh of Barro				<u></u>	
IL BOND INTORMA	CHON STORY	oden or Barro	ν,			North Slope Borough	
TYPE N/A	Surety and/or	r Mo				Amusi	
S DISTANCE PRO	M PROPOSED*		76	NO. OF ACRES IN LEAD	11	NO. ACRES ASSIGNED	
	NEAREST LEASE LINE FT. drig, unit, if any!	03 4001	- 1	22 600 000		TO THIS WELL.	
II. DISTANCE PRO	M PROPOSED LOCA	92,400'	15	23,680,000 L PROPOSED DEPTH	- ;	N/A ROTARY OR CABLE TOOLS	
OR APPLIED F	WELL DRILLING, CO. PT.	OMPLETED,			j-	THE PARTY OF CAPEL TOOLS	
	5.	3,580'		12,300'		Rotary	
					"	APPROX. DATE WORK WILL START	
90' GL.	KB - 110		ARING AN	D CEMENTING PROGRAM		February 1, 1977	
SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	GRADE	SETTING DEPTH			
26"	20"	133	k=55	80 '	To	quantity of coment	
175"	13 3/8"	72	se-9		To sur	face w/Permafrost face w/Permafrost	
12½"	9 5/8"	53.5	ss-9:			s Class "G"	
8 ¹ s''	7.".	32	N-80	Liner	560 sk	s "G" to cover entire length	
				<u> </u>	of 1:		
This form is being filed for information purposes only. Please refer to letter from Director, Naval Petroleum and Oil Shale Reserves, Serial #394, 27 August 1968. DECENTED OCT 2 1 1976							
	y that the Poragoing		l· If propo directions	ehl is to deviven, give data ily, give perlihent data on	E on present	productive total and proposed and GAS attends and reconstructed COS	
SIGNED.	<u>> 17</u>		DA	TT		nns <u>Drilling Manage</u> r	
(This space for Su			TORS OF	APPROVAL, IP ANY:		· · · · · · · · · · · · · · · · · · ·	
SAMPLES AND C	ORE CHOPS REQUIR	1 -0.2 2.10	NO	OTHER REQUESTS:			
DIRECTIONAL SU	CHATTOOLS YEVED			A.P.I. NUMBERCAL CODE			
D ARR DI	*O			50-10	73 - 2	0009	
PERMIT NO.				APPROVAL DATE			
* B00001000 000							
APPROVED BY		-2-	Catracti	ons On Revense Side	· -	DATE	

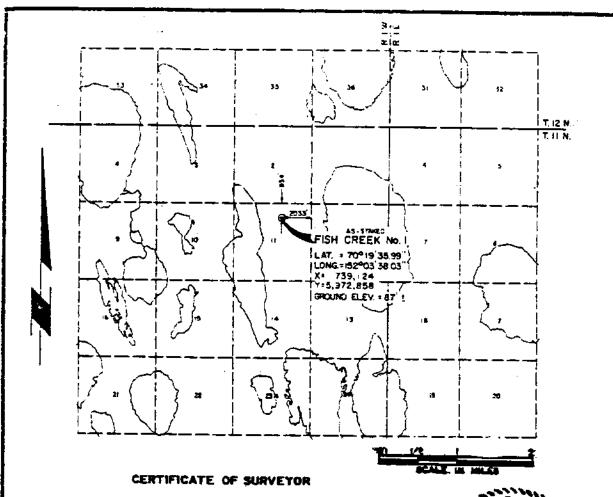
Form 6-130 (Rev. 4-63)										
••••				TATES		T EN DUPLIC	ATE • dther in-		Form at Budget 1	proved. Buresu No. 42-8355,5.
	DEPAR	—			TERIOF	etru.	ations on		TAK DIGS	ON AND BEREAL NO.
		GEOLOG	SICAL	SURVEY	•			N/A		
WELL CO	MPLETION	N OR RE	COMPL	FTION F	REPORT	AND LO	G•	6. IF INDIA	i, 11107	THE OR TRIBE NAME
1. TYPE OF WEL		. 🗂 🙃	• 🗁				-	N/A		
L TYPE OF COM			ice 🗀	DET LA	Other			i.	ma manat	ATES
WRW WHILL	OFRE DE	Er. 🗆 🐉	.0s 🗌	DIFF.	Other Ab	andonmen	t	N/A 5. FARM OR	LEADE :	PAME
2. NAME OF OPERAT	ros							Naval F	etro	leum Reserve No.
Husky 011 N		ions, Ind	: <u> </u>					B. WHILL RO.		
3. ADDRESS OF OPE								West Fi	sh C	reek No. 1
3201 C St						emental a				OF AUTOCYL
	x = 739,12								1 M 0	M ALOCK AND SUBTRY
At top pred. inc	terval reported à	elow						OR IREA	•	
At total depth										
ar was aspec			(74	. PERMIT NO.		DATE IBBURD		Sec 11,		N, RIW
			I -	/A	Ι.	711 19EDZD		PARISE		
15. DATE SPUDDED	16. DATE T.D.	BEACHED 17) prod.) 18.	SLEVATIONE (DF. SER. I	NOFTH S	LOPE	Alaska
2/14/77	4/21/77	AE	andone	d 4/27/7	7 901	GL (est); KB	110' (es	<u>.</u>	90' (est)
20. TOTAL DEPTH. MD	ı		MD A TVD	22. SF M*L*	TIPLE COMPL.	I 23. INT	ERTALS	BOTARY TOO	C.A	CYRCS 400TR
11,427' MD		43' MD		N/A			<u>→ </u>	0-11427		None
*** ***********************************		COMPLETION			TO THE SABIL				25.	SASASA MADE MAR DIRECTIONAL
N/A									١,	No
26. TYPE BLECTRIC A	NO OTHER LOGS	ADM								AUT COPPE
DIL, BHC-So	nic/GR, FI	DC/CNL/GE					rvey		No	
ZARINO BIER	WRIGHT, LB.	/== n##	CABING R		ort all etringe in usse		u ERTING			
20"	133#		104	26					-	AMOORY PULLED
13 3/8"	72#		614'	17				rost II	-	None None
9 5/8"	53.5#		216'	12	 ;	1066 sx				2465'
								350 sx C	lass	"G"
29.		LINER REC				30.	3	TUBING RECO)R.D	
PLED !	TOF (MD)	BOTTOM (M	D) PICE	O CHMBAIL	DCHMAR (MD) ULE		OPPER OFF (M	D)	PACEBR SOT (ND)
		ļ	<u></u>				-		-	
31. PREPORATION SEC	comp (Interval, s	ise and numb	<i>ल</i> ो		12.	ACID. SHOT	FRACT	URE, CEMENT	r sourc	ELL ETC.
9050-9051'					DEPTH INT			NIE OKA TWO		
4" HyperJet	II Squeez	e Gun			9050-9	051!	Retai	ner. 350	sx (Class "G"
Five Holes										
										
33.*				PROD	UCTION	 -	<u> </u>			
DATE PRET PRODUCT	10N P9.01	OCTION METH	oo (Flewin	ış, gas Kft, yu	mpino-olas a	nd type of pur	np)	WELL	471178	Producing or
N/A	N/			<u>-</u>				P	i-in) and A	1
DATE OF TRAT	MOURE TRATED	CHOER	0152 71 Ti	BOD'N FOR BET PERIOD	OILBEL	04B	CF.	WATER-BAL	. 0	AS-DIL RATIO
FLOW, TORING PRINCE.	CABINO PEREC	KZ CALCULA	TED 01		 G48— ≥	GT.	WATER-	<u> </u>	077. 05	VITT-API (CORR.)
		24-8001	÷ 1.175		!		~ ~ ~ ~ ~ ~		~111 WILL	(CVEE.)
34. DISPOSITION OF S	AD (Bold, meet fo	r Just, penied,	atc.)				I	ther wires	and pr	
76 1166 65										
35. LIST OF ATTACK	M.S.TTR			<u></u>	-			-		
36. I hereby certify	that the foreset	ng and atturb	ed informa	tion is commi	ete and me-	t as determin	ad faces	II avellable -		
							es troms	ETEREDIE D	-cor cu	
signed B.	K. Allard			TITLE _	Drilling	Manager		JATE	<u>Ju</u>	ne 9, 1977
	*/C.	. 1	1.0	- , ,	1.0		-		-	

*(See Instructions and Spaces for Additional Data on Revene Side)

RECEIVED, Office of the 0il δ Gas Supervisor, June 16, 1977

Form P=1						e71	DWIT	IN DUPL	1C4 TT 4			
			STA	TE OF	ALA5KA			15	ee ather			
		OIL AP	ND GAS CO	DNSERV	ATION	соммп	TEE	81 F 6	rurtions :	" " "	I NÚMERIC	
WELL CO	WELL COMPLETION OR RECOMPLETION REPORT AND LOG*										103-200 SE DISIGI	NATION AND SERIAL NO
10. TYPE OF W		OIE IION	OR RECU	JMPL		KEPUK	_ ^	ND L	<u> </u>	N/A		
		WELL	⊔ ₩eu		DET X	Other				_ 1. LP 1	MDIAN, AL	LOTTER OR TRIBE NAME
b. TYPE OF COMPLETION: NEW WORK DEEP DEEP DIPP. Other Abandonment N/A N/A N/A N/A N/A N/A N/A												
T MANY OF OPPRIANCE										•		
Husky 011	NPR Op	erațio	ns, Inc.							P. WE	LIPPETO L NO.	oleumReserveNo.
										Mes.	Fish	Creek No. 1
4. LOCATION OF W	ELL (Repor	location	clearly and b	s secorda	nos with s	ny State re	#10 g @s.	ents) i		┥	icar	COL OR WILLICAT
At surface	x = 73	9,124;	y = 5,9	72,85	8					11. 53	JECTIVE)	(BOTTOM ROLE
At top prod. 1	LICETTAL PERS	orted belo	*									
At total depth												lin, Riw
										N/A	RMIT NO.	
13. DATE SPUDDED	14. DATE	T.D. REA	CHED 15. DAT	TE COMP	SUSF OR A	UBAND. Ji	. O.T	VATIONS	(DF, RK)		. 27 C)*1/7.	ELEV. CASINGHEAD
2/14/77_		1/77			4/27/	77	90'			110' 1	OB (est) 90' (est)
II. TOTAL DEPTH, I				A TVD	A IF MUL HOW H	TIPLE COM	PL.,	21.		137	ERVALD DEI	CAULE TOOLS
11,427' ME	779 741 /41	2,44	31 MD			N/	<u>A</u>	0-1	1,427	Y		None
2. Proboemo in	LRVALLAI,	OF INIS	COMPLETION	4 TQBP, 3	KOTTOM.	NAME (MID	AND	יומעד			!	23. WAS DIRECTIONAL SURVEY MADE
N/A No												
M. TYPE ELECTRIC												
DIL, BHC-S	onic/G	R, FDC	/CNL/GR,					ity S	urvey			···
CASING SIZE	WEIGI	HT. LB/FT			SET (MID)	HOLE SIZ	$\overline{}$		CEMENT	NG REC	ORD	AMOUNT PULLED
20"	13	3.6	K-55	104		26" 140 sx Permafrost II None					-	
13 3/8"	7	2#	S-95	261/	<u>, 1</u>	17 k"		00 sx		_		None
9 5/8"	5:	3 <u>.5#</u>	S-95	9216	6 ¹	12 7"	10	66 sx	Class	s "G"		2465'
28. I	INER RECO		1	.		L		squee:				<u></u>
SIZE	TOP (M		OTTOM (MD)	Tan Circ	CEMENT	SCREEN		27. S12.E	·	UBING R	SET (MD)	(
				Janua G	Cartan	30,000	·	1 3122	+	242 11	(MCD)	FACICER SET (MD)
						Ī		Ì	-			
20 PERFORATIONS	OPEN TO PI	юрустю	M (interval.	size and n	(mp#t)	2).			ACTURE	CEMEN	T SQUETZ:	E. ETC.
						DEPTH INTERVAL (MD) AMOUNT AND KIND OF MATER					MATERIAL USED	
						9050-9051' Retainer: 350 sx Cla					sx Class "G"	
N/A						15 hold	28		+ -			
									+			
30.				UCTION								
DATE FIRST PRO	DUCTION		CTION METRO	D (Flower	NE. CAS 1121,	pumping—si	end	type of pu	т		WELL STA	TUS (Producing or
DATE OF TREE.	HOURS T	L N/	CHOSE SIZE		YN FOR	OL-85L		GAS-M	ICT.	WATE	R-BAL	P and A
			<u></u>	1 •	PERUOD	1.						
PRESS.	CASING P	ressure	CALCULATE M-HOUR RA	2 OH.	BBI.	GAS	MCT.		WATER	BBL.	OIL.	GRAVITY-API (CORR.)
31. DESPOSITION O	F CAB (Spid	, wast /or	fuel, pontad, e	tc.)						TEST 4	TTNESSED	st -
32, LIST OF ATTE	CE 1/2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2								•••	1		
SZ. DIGT OF ATT	CEMENTS											<u> </u>
33. I bereby cert	dy that th	e foregoln	g and attache	d Informa	tion is co	mplete and	correc	as deter	mined fr	040 kll &	àllàble rec	cords
SIGNED	B. R. A	llard			TITLE	_Drill:	lng i	Manage	· T		D.TE	June 9, 1977
											DATE	

*(See Instructions and Spaces for Additional Data on Revene Side)



I hereby certify that I am properly registered and licensed to practice land surveying in the State of Alaska and that this plat represents a location survey made by me or under my supervision, and that all dimensions and other details are correct.

7-22-76 anchew &



A STAKES FISH CREEK No. 1

MOTRACTED SECTION OF THE UNION SETTIONAL AS

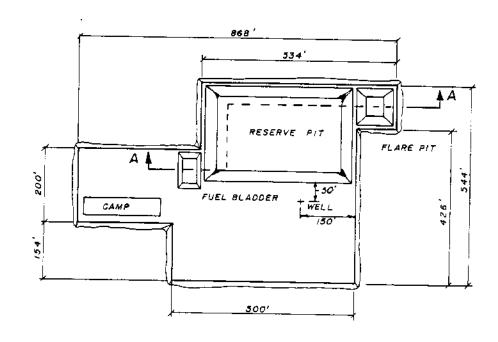
Surveyed for HUSKY OIL

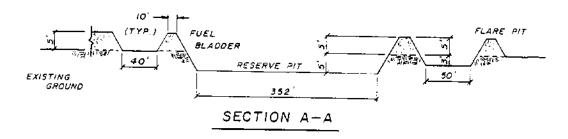
N.P.R. OPERATIONS INC.

E.M. LINDSEY & ASSOC.

LANS & HYDROGRAPHIC SURVEYORS 2502 Hest Northern Lights Boulevard Box 4 - C3: Апсрагаде

W. FISH CREEK DRILLSITE





OPERATIONS HISTORY

DATE AND FOOTAGE DRILLED AS OF 6:00 A.M.	ACTIVITY
2/1/77	Moving in and rigging up. Received 93 Herc loads. Erected shop building and elevator; laid fuel lines; set draw works and motors.
2/2/77	Rigging up. Received 99 loads. Worked on runway lights. Brought in motors, derrick, pump house, and mud tanks. Unloaded Rolligons. Twenty-five percent rigged up.
2/3/77	Rigging up. Received 103 Herc loads. Two loads of camp units remaining. Strung up blocks; hooked up mud tanks; rigged up suitcases; repaired crane; began installing wind walls; started rig generator; unloaded Hercs and Rolligons.
2/4/77	Rigging up. Put up sheds, windwalls, suitcases, water lines, and fuel lines. Set in new motor. Received mud from Lonely.
2/5/77	Rigging up. Rigged up sheds and windwalls. Set in rig engine and hooked up. Hooked up pumps, fuel and water lines, and boiler. Worked on crane.
2/6/77	Rigging up. Installed windwalls. Hooked up compound. Fired boilers, circulated through suitcases. Received mud, Kodiak water truck, Schlumberger equipment, and Howco unit. Set Howco cement pods. Approximately 45% rigged up.
2/7/77	Rigging up. Set windwalls. Worked on boiler feed pumps; hooked up compound chains; hooked up Tioga heaters; set Halliburton cement tanks and pumping unit.
2/8/77	Rigging up. Continued hooking up Tioga heater. Hooked up fuel and steam lines and steam heaters. Started rig engines. Set chain guards. Prepared to raise derrick. Received four loads of Permafrost II cement.
2/9/77	Rigging up. Installed rotary hose; raised derrick; connected steam, air, mud, and fuel lines. Hooked up mud mixing pumps, desander, and desilter. Worked on mud pumps. Set rotary table and floor plates.

Serviced draw works. Put three barrels cement in 20" casing in preparation to cement 20×26 " annulus. Received all seven loads of cement.

2/10/77

Rigging up. Installed ramp. Changed liners in D-700. Worked on boilers and draw works; welded on 20" starter head; hooked up desander and jet lines. Began tuboscoping drill collars and subs. Cemented 20" conductor with 140 sacks Permafrost II. Cement in place at 12:15 a.m.

2/11/77

Rigging up. Set rat hole and mouse hole. Hooked up steam heaters; worked on mud pumps; repaired hydromatic; picked up kelly and swivel. Continued tuboscoping collars and subs. Set pipe racks.

2/12/77

Rigging up. Rigged up steam heaters; installed pump liners; hooked up discharge lines to desilter and desander; installed flow line; set pipe racks; steamed out water lines; made and installed cellar jets; hooked up logging unit.

2/13/77

Rigging up. Hooked up and circulated water lines; completed and installed cellar jet; installed pressure-volume-temperature; worked on mud system; installed blow down lines. Filled pits and mixed mud. Built shaker slide.

2/14/77

Rigging up. Installed hot air duct; set Koomey remote unit; rigged up slick line unit; thawed out mud line. Tested Hydril to 1,000 psi; tested OK. Reset rotary, hooked up Totco. Picked up 17-1/2" drilling assembly. Prepared to spud.

Well spudded at 9:00 a.m., February 14, 1977.

2/15/77 1371'

Total Depth: 1475'; Mud Weight: 9.3; Viscosity: 42. Picked up bit, shock sub, and drill collars. Drilling ahead and surveying.

2/16/77 _. 751' TD: 2226'; MW: 9.2; Vis: 35. Drilled ahead to 2226'. Pulled out of hole for new bit; went back in hole. Staged in circulation and conditioned hole and mud.

2/17/77 414'

TD: 2640'; MW: 9.8; Vis: 51. Circulated and conditioned mud. Drilled to 2640'. Circulated and conditioned hole for logs. Rigged up Schlumberger. Logs stopped at 433' and 490'. Rigged down. Went in hole to condition for logs.

2640'; MW: 9.9; Vis: 44. Tripped in and 2/18/77 TD: conditioned hole for logs. Rigged up and ran logs. Logs stopped at 1942'. Logged with DIL and BHC Sonic from 1940' to 20" casing at 104'. Tripped in and conditioned hole for casing. Rigged up to run 13-3/8" casing. 2/19/77 TD: 2640'; MW: 9.8; Vis: 43. Ran 68 joints (2618') of 13-3/8", 72#, S-95. Set at 2614'. Shoe at 2614', collar at 2541', nine centralizers at 2604', 2572', 2535', 2499', 2430', 2354', 2284', 2206', and 2131'. Cemented with 2,800 sacks of Permafrost II. Full returns for first 2,400 sacks; lost returns. Pumped 400 sacks Permafrost II; no returns. Displaced drill pipe with 45 barrels. Pulled out of hole with stinger. 2/20/77 TD: 2640': MW: 9.8; Vis: 43. Picked up 20" 0' blowout preventer and ran 1" pipe in 13-3/8 x 20" annulus to 136 KB. Cemented with 200 sacks Permafrost II. Set slips and set 45,000 pound casing load to energize pack-off. Cut off 13-3/8" casing and set back blowout preventer. Installed OCT unihead and tested 20" flange to 2,000 psi. Tested OK. Nippled up blowout preventer. 2/21/77 TD: 2640'; MW: 8.9; Vis: 44. Nippled up O' blowout preventer, accumulator, blowout preventer lines, kill and choke lines, and gas buster. 2/22/77 TD: 2640'; MW: 8.6; Vis: 38. Nippled up blowout preventer. Pressure tested rams and choke manifold to 5,000 psi. Tested Hydril to 2,500 psi. Tested OK. Tested 13-3/8" casing to 2,500 psi. Tested OK. Picked up bit and bottom hole assembly. Prepared to drill out. 2/23/77 TD: 3660'; MW: 9.2; Vis: 40. Drilled out shoe and 10461 10' of formation. Tested to equivalent gradient of 0.64 psi/ft. Tested OK. Drilled to 3134' and

surveyed.

4395'; MW: 9.3; Vis: 45. Drilled to 4343'. Tripped for bit.

5320': MW: 9.7; Vis: 43. Drilled ahead. Repaired mud lines.

5735'; MW: 9.6; Vis: 44. Drilled to 5411' and tripped for Bit No. 5. Tripped in and reamed 60' to bottom (precautionary). Hole in good condition.

2/24/77

2/25/77

2/26/77

735

9251

415"

2/27/77 339'	TD: 6074'; MW: 9.8; Vis: 44. Tripped at 6056'. Tripped in OK. Washed 60' to bottom (precautionary).
2/28/77 515'	TD: 6589'; MW: 9.9; Vis: 40. Drilling.
3/1/77 299'	TD: 6888'. MW: 9.9; Vis: 40. Drilled ahead to 6888'. Pulled out of hole for new bit. Received four Herc loads of cement.
3/2/77 257'	TD: 7145; MW: 9.9; Vis: 42. Drilled ahead.
3/3/77 271'	TD: 7416'; MW: 9.8; Vis: 48. Circulated samples at 7398'. Drilled ahead.
3/4/77 181'	TD: 7597'; MW: 10.2; Vis: 41. Drilled to 7597'. Dropped survey and tripped out. Steel line measured. Tight spot three stands off bottom. Tested blowout preventers.
3/5/77 0'	TD: 7597'. Tested blinds, pipe, and choke manifold to 5,000 psi. Repaired 4" valve on outside choke line. Tested Hydril to 2,000 psi. Blind and pipe rams on one side of stack failed to open. Worked on blowout preventers.
3/6/77 0'	TD: 7597'; MW: 10.2. Repaired blowout preventer (bolts to carrier were broken). Replaced blind and pipe rams. Tested to 5,000 psi. Tested OK. Staged in hole. Washed and reamed to bottom.
3/7/77 224'	TD: 7821'; MW: 10.4; Vis: 43. Completed trip in. Reamed and washed to bottom. Drilled ahead.
3/8/77 124'	TD: 7945'; MW: 10.8; Vis: 47. Short trip at 7863'. Pulled three stands very tight then began to swab. Tripped back to bottom. Raised mud weight to 10.8 ppg and drilled to 7945'. Tripped for bit. One tight spot while tripping out.
3/9/77 156'	TD: 8101'; MW: 10.7*; Vis: 45. Picked up three 8" drill collars; cut drilling line. Tripped in. Went back to bottom OK. Slight amount of fill (± 30'). Slight drag on connections. Four pounds/barrel soltex in system.
3/10/77 202'	TD: 8303'; MW: 10.8; Vis: 48. Drilled to 8303' and tripped out for bit. Hole OK. Changed jars.

3/11/77 245' TD: 8548'; MW: 11.0; Vis: 47. Tripped in. Washed and reamed 180' to bottom (tight hole). Drilled ahead.

3/12/77 60' TD: 8608'; MW: 11.1; Vis: 49. Drilled to 8593'. Made seven stand short trip; dropped survey. Trip out OK. Tripped in and reamed through 60' tight spot ± 250' off bottom. Washed last 30' to bottom OK.

3/13/77 293' TD: 8901'; MW: 11; Vis: 47. Drilled ahead.

3/14/77 74'

TD: 8975'; MW: 11.1; Vis: 51. Drilled to 8975'. Dropped survey. Tripped for bit. Steel line measured out. Checked OK. Slipped drilling line. Tripped out; had tight spots on fourth, fifth, sixth and seventh stands out. Trip in had tight three stands plus double off bottom. Put on kelly and reamed and washed to bottom.

3/15/77 93'

TD: 9068'; MW: 11.3; Vis: 62. Finished reaming to bottom (8975'). Drilled to 9068'. Circulated. Made ten stand wiper trip, reamed last 115' to bottom. Circulated. Made ten stand wiper trip; 15' fill. Circulated. Made seven stand wiper trip; 15' fill. Circulated. Made seven stand wiper trip; no fill. Circulated. Pulled out of hole to log.

3/16/77 0'

TD: 9068'; MW: 11.3; Vis: 62. Ran DIL, BHC-Sonic/GR, FDC/CNL/CAL, HRD from their total depth of 9070' to 13-3/8" shoe. Prepared to shoot sidewall.

3/17/77 200' TD: 9268'; MW: 11.1; Vis: 50. Shot 66 sidewall cores; recovered 35. Drilled ahead to 9268'.

3/18/77

TD: 9270'; MW: 11.3; Vis: 79. Drilled to 9270'. Circulated and conditioned hole. Pulled out of hole; stuck at 8922'. Worked and jarred; pulled out pin; recovered two drill collars. Pulled out of hole. Picked up overshot and fishing tools. Latched onto fish at 8321'. Jar moved 15' down hole. Lost weight and pump pressure. Pulled out of hole.

3/19/77 0' TD: 9270'; MW: 11.3; Vis: 79. Pulled out of hole with 6-1/8" overshot. Ran in hole with 6" overshot. Worked over fish at 8423'. Worked up to 8367'. Could not move up or down. Rigged up free point. Pulled fish up hole 8' while trying to free point. Fired free point at bottom; misfired. Pulled out of hole with free point. Worked pipe up hole another 16'. Top of fish at 8343'.

3/20/77 0' TD: 9270'; MW: 11.5; Vis: 59. Worked pipe. Rigged up and ran dialog junk shot to 8967'. Fired and pulled out of hole. Picked up kelly. Circulated and worked pipe. Pumped out nine joints of drill pipe. Recovered fish.

3/21/77 0' TD: 9270'; MW: 11.3; Vis: 74. Completed picking up 6-3/8" drill collar (23 total). Picked up 15 joints heavy wall drill pipe. Strung up 10 lines. Repaired drum clutch. Ran in hole. Broke circulation at 7400' and circulated bottoms up. Ran in hole to 8400' and circulated. Found bridge at 8499'. Drilled bridge at 8749'.

3/22/77 0' TD: 9270'; MW: 11.5; Vis: 97. Drilled bridges from 8749' to 9180'.

3/23/77 0' TD: 9270'; MW: 11.6; Vis: 109. Drilled bridges and reamed to 9270'. Circulated four hours and conditioned mud. Pulled out of hole. Pumped through tight spot at 8958'. Pulled out of hole to 7000'. Ran in hole. Bridge at 8603'. Drilled bridges from 8755' to 9270'. Circulated 1-3/4 hours. Short trip to 7000'. Tight at 8616' and 7016'. Ran in hole. Drilled bridges at 8772' and 8800' to 9250'. Circulated 1-1/2 hours. Pulled out of hole. Short trip to 7000'. No tight spots.

3/24/77

TD: 9270'; MW: 11.6; Vis: 113. Short trip to 7000'; 10 feet of fill. Circulated 4-1/2 hours. Pulled out of hole and steel line measured. Chained out to 13-3/8" casing. Rigged up Schlumberger. Ran DIL from 9203' to 8860' (wouldn't go below 9203'). Ran in hole with drill collars and repaired draw works. Ran in hole to 9200'. Washed and reamed fill from 9200' to 9270'. Circulated and conditioned hole and mud.

3/25/77 o' TD: 9270'; MW: 11.5; Vis: 107. Circulated and conditioned hole. Short trip to 7000'. Tight at 7325'. Drilled 8' of fill on trip in. Circulated and conditioned hole four hours. Pulled out of hole. Changed pipe rams and pulled wear bushing. Rigged up and ran 9-5/8" casing. One hundred twenty-two joints run at 6:00 a.m.

3/26/77 0' TD; 9270'; MW: 9.4; Vis: 47. Ran 233 joints 9-5/8", 53.5#, R-3, buttress casing. Landed at 375,000 pounds. Shoe at 9216'; float collar at 9133', FOs at 2396' and 2181'. Circulated casing at 100 barrels pumped; lost returns. Ran up to cement. Cemented with 20 barrels water ahead, 1,066 sacks of

Class "G" with 1% CFR-2 and 0.3% HR-7 mixed at 15.6 ppg. Displaced with 649 barrels of 9.4 ppg mud. Plug did not bump. Cement in place at 12:30 a.m., March 26. Pulled landing joint and running tool. Ran packoff and tested to 5,000 psi. Tested OK. Cleaned mud pits. Final pressure 1,400 psi.

3/27/77 o' TD: 9270'; MW: 9.9; Vis: 60. Waited on cement. Built mud volume. Changed pipe rams, tested blowout preventer and choke manifold to 4,000 psi, Hydril to 1,500 psi. Ran wear bushing. Ran in hole with 8-1/2" bit. Found top of cement at 8607'. Drilled cement to 8900'.

3/28/77 0'

TD: 9270'; MW: 10.5; Vis: 56. Drilled out cement to 9096'. Tested casing to 3,000 psi. Tested OK. Circulated and pulled out of hole. Ran Schlumberger's VDL/CBL/GR log from 9091' to 8400' with 500 psi on casing. No cement. Ran GR/CCL from 2600' to surface. Cut drilling line. Ran in hole and steel line measured open-ended. Circulated and conditioned mud to 11.5 ppg.

3/29/77 n'

TD: 9270'; MW: 11.5; Vis: 51. Circulated and built mud weight to 11.5 ppg. Pulled out of hole. Rigged up Schlumberger and ran 4" squeeze gun. Perforated at 9050', 1' (5 holes). Pulled out of hole.

3/30/77 0'

TD: 9270'; MW: 11.5; Vis: 57. Rigged Ran Howco 9-5/8" Schlumberger. retainer and set at 9000'. Established 2 BPM rate at 3,000 psi into perforations. Pumped 8 barrels mud. Mixed and pumped 350 sacks Class "G" with 1% CFR-2 + 0.2% HR-7 (15.8 ppg) (slurry volume 71.7 barrels) with 5 barrels water behind and ahead. Squeezed 12-1/2 barrels into perforations and pressure increased to 4,000 psi and rate to 0 BPM. Reversed out excess cement. Pulled out of hole. Ran in hole with bit and bottom hole assembly. Circulated and conditioned mud and waited on cement. Cement in place at 5:30 p.m., March 29.

3/31/77 0'

TD: 9270'; MW: 11.4; Vis: 62. Circulated and waited on cement. Drilled retainer and cement to 9040'. Drilled float collar and cement to 9190'. Tested perforations to 0.66 psi/ft. equivalent gradient (550 psi with 11.5 ppg mud). Pulled out of hole. Ran VDL/CBL/GR from 9190' to 8400' with 500 psi on casing. Bond on shoe joint plus bond at squeeze point. Pulled out of hole and ran in hole with bit and bottom hole assembly. Drilling cement at 9200'.

4/1/77 0'	TD: 9270'; MW: 11; Vis: 62. Drilled cement and float shoe. Drilled 8' of cement below shoe. Washed to 9270'. Drilled in junk at 9270'. Pulled out of hole. Lost three cones. Waited on fishing tools. Ran in hole with 8-1/8" globe basket. Milled 2'. Pulled out of hole. Recovered rocks. Ran in hole with 8-7/16" mill.
4/2/77 70'	TD: 9340'; MW: 10.6; Vis: 52. Ran in hole with 8-7/16" flat bottomed mill. Cleaned out to bottom. Milled 2-1/2'. Pulled out of hole with mill and ran in with 8-1/2" bit. Worked around junk. Tested shoe to 0.63 psi/ft. equivalent gradient. Tested OK. Drilled ahead to 9340'.
4/3/77 146'	TD: 9486'; MW: 10.4; Vis: 52. Drilled to 9341'. Surveyed. Tripped out. Repaired Koomey unit. Tripped in and drilled.
4/4/77 81'	TD: 9567'; MW: 10.4; Vis: 52. Drilled to 9488'. Surveyed. Tripped out. Serviced rig. Cut drilling line. Drilled to 9567'. Surveyed. Tripped out and changed bits. Tripped in.
4/5/77 98'	TD: 9665'; MW: 10.4; Vis: 49. Tripped in. Drilled ahead.
4/6/77 61'	TD: 9727'; MW: 10.4; Vis: 50. Drilled to 9669'. Surveyed. Pulled out of hole. Tested blowout preventer and choke manifold to 5,000 psi, Hydril to 2,000 psi. Tested OK. Tripped in. Reamed to bottom (precautionary). Drilled ahead.
4/7/77 30'	TD: 9757'; MW: 10.5; Vis: 54. Drilled to 9744'. Tripped for bit. Lost tip from one cone. Tripped in to drill up junk. Tripped out and recovered three small pieces of junk.
4/8/77 124'	TD: 9881'; MW: 10.4; Vis: 51. Drilled ahead. Changed out Koomey bottles.
4/9/77 98'	TD: 9979'; MW: 10.4; Vis: 47. Tripped for Bit No. 24. Drilled ahead.
4/10/77 113'	TD: 10,092'; MW: 10.4; Vis: 53. Drilled to 10,092'. Tripped out for bit.
4/11/77 148'	TD: 10,240'; MW: 10.4; Vis: 54. Tripped in. Drilled ahead. Began losing mud at 10,193'. Mixed fine mica and nut plug in system. Got full returns back. (Lost ± 250 barrels over a three hour period while drilling.) Maintained some lost circulation material in system.

4/12/77 171'	TD: 10,411'; MW: 10.4; Vis: 47. Drilled ahead to 10,411'. Tripped out to change bits.
4/13/77 98'	TD: 10,509'; MW: 10.4; Vis: 47. Tripped in. Drilled ahead.
4/14/77 75'	TD: 10,584'; MW: 10.4; Vis: 45. Drilled to 10,584'. Pulled out of hole. Changed bits. Ran in hole with bottom hole assembly and cut drilling line. Ran in hole.
4/15/77 200'	TD: 10,784'; MW: 10.4; Vis: 45. Tripped in. Washed and reamed 30' to bottom. Hole was 1/4" out of gauge on last bit run. Reaming was precautionary. Drilled ahead.
4/16/77 106'	TD: 10,890'; MW: 10.4; Vis: 50. Drilled to 10,811'. Surveyed. Tripped out (steel line measured). Steel line measured 8' deep. Tested blowout preventers (rams and choke manifold to 5,000 psi and Hydril to 2,500 psi). Tested OK. Tripped in and drilled ahead.
4/17/ 7 7 96'	TD: 10,986'; MW: 10.4; Vis: 47. Drilled to 10,954'. Surveyed. Tripped. Drilled ahead.
4/18/77 69'	TD: 11,055'; MW: 10.4; Vis: 49. Drilled to 11,055'. Pulled out of hole. Changed bits and slipped drilling line. Tripped in. Drilling line pulled out of clamp and kinked. Slipped and cut drilling line.
4/19/77 138'	TD: 11,193'; MW: 10.4; Vis: 48. Completed cutting drilling line. Ran in hole. Reamed and washed to bottom. Drilling ahead.
4/20/77 125'	TD: 11,318'; MW: 10.6; Vis: 47. Drilled to 11,239'. Tripped for new bit.
4/21/77 104'	TD: 11,422'; MW: 10.6; Vis: 56. Drilled ahead.
4/22/77 5'	TD: 11,427'; MW: 10.6; Vis: 55. Logging. Ran DIL from 11,426' to 9213'; FDC/CNL from 11,426' to 9213' with skips at 10,800' to 10,700' and 10,450' to 10,430'. Tripped in to clean out. Went to bottom OK.
4/23/77 0'	TD: 11,427'; MW: 10.5; Vis: 59. Tripped out. Ran BHC-Sonic from 11,422' to 9213'. High-resolution dipmeter tool failed. Ran FDC/CNL.

4/24/77 0' TD: 11,427'; MW: 10.5; Vis: 59. Logging. Completed FDC/CNL OK. Ran high-resolution dipmeter. Ran sidewall cores; shot 30, recovered 18. Ran Velocity Survey. Tripped out to lay down drill collars.

4/25/77 n' PBTD: 9125'; MW: 10.6; Vis: 57. Tripped in open-ended to 10,539'. Set Plug No. 1, 10,539' to 10,399', with 70 sacks Class "G". Cement in place at 6:15 p.m. Picked up to 9553' and spotted Plug No. 2 from 9553' to 9343' with 70 sacks Class "G". Cement in place at 7:15 p.m. Picked up to 9325' and spotted Plug No. 3 from 9325' to 9125' with 70 sacks Class "G". Cement in place at 8:15 p.m. Cleared drill pipe. Pulled out of hole and picked up 9-5/8" EZ drill retainer and tripped in:

4/26/77 0' PBTD: 8777'; MW: 10.6; Vis: 62. Set 9-5/8" EZ drill retainer at 8850' and spotted 25 sacks Class "G" on top. Circulated. Pulled out of hole and laid down drill pipe. Tripped in with 9-5/8" casing cutter and cut at 2465'. Laid down 9-5/8" casing.

4/27/77 0'

PBTD: 2443'. Laid down 9-5/8" casing. Ran in hole with bit to 2463'. Circulated and conditioned mud. Tripped out and picked up 13-3/8" Howco EZ drill Ran and set at 2443' on drill pipe. Established injection rate (5 BPM at psi). "G" Squeezed 65 sacks Class below retainer and spotted 10 sacks on top. Pulled out of hole to 2343'. Reversed out mud with water and water with diesel. Laid down drill pipe and kelly. Nippled down blowout preventer and cleaned mud tanks.

4/28/77

Released rig at 12:00 noon, April 27, 1977. Laid down floor shedding. Laid down derrick. Began rigging down and stacking out.

4/29/77

Rigging down. Set out draw works, suitcases, and top dog house; unstrung blocks; set pump shedding out.

4/30/77

Rigging down and stacking out on pad.

5/1/77

Rigging down and stacking out. Broke down derrick. Set out subbase. Completed compound bearing replacement and clutch repair.

5/2/77

Completed rig down.

5/3/77	Began demobilizing support equipment. Alaska General prepared to relocate some construction equipment.
5/4/77	Completed demobilization of support equipment and backhaul to Deadhorse. Cleaned location.

DRILLING TIME ANALYSIS

WEST FISH CREEK NO. 1

PARCO, INC., RIG 96

Spudded 2/14/77; Rig released 4/27/77

Total Depth: 11,427 Feet

1			П]		· ·		! -	Γ		· · ·	_	}	 	Γ	
Page 1 of 8	Comments	Preparing Rig For Transnort	Preparing Rig For Transport	Transport Rig - Set Up Camp	Transport R1g - Set Up Camp	Transport Rig - Set Up Camp	Transport Rig - Set Up Camp	Transport Rig - Set Up Camp	Transport Rig - Set Up Camp							
	Operations at 6:00 а.m.															
-	OTHER	18	91	7	12	12	12	12	24	24	24	24	24	24	24	24
WEST FISH CREEK NO.	W O MAT./EQUIP.			1												
BEE	DIR. WORK		1													
1 H	SOUEEZE CEMENT				•		-									
I EI	PLUG BACK		寸				\dashv									
MES	Teg															
	СОВІИС	_									_					
2	FIZHING								-	_	_		-			
RATIONS, INC.	LOST CIRC.		十													
AT1C	CHANGE BHA	\dashv			\dashv		{		\dashv		-	\dashv	\dashv			
OPER,	TEST BOP	-		+								-		\dashv		
	NIPPLE UP/DOWN BOP	-							\dashv		\dashv					
NPR	M O C		1	+	\dashv		\dashv		\dashv	-		\dashv				
HUSKY	CASING & CEMENT	\dashv	+	\dashv		\dashv				_				\dashv		
₽.	гоееіме	\dashv	+	\dashv							\dashv		-	\dashv		
	CIRC, & COND, MUD		+	-			-	\dashv	\dashv		\dashv				-	
OUR	RIG REPAIR	\dashv	\dashv	+		_	\dashv	\dashv		\dashv	\dashv			-		
E	RIG MAINT.	\dashv	\dashv	\dashv	+								+		-	
DRILLING TIME ANALYSIS (HOURS)	DEA: SURVEY	+	+	\dashv	\dashv								+		\dashv	
NAL	діят.	+	+	-+	-		\dashv	-		\dashv	_	-	\dashv			\dashv
IE A	REAMING				\dashv		\dashv	-+	\dashv	\dashv	\dashv	-	+			\dashv
T ‡ IV.	<u></u>	+	+	_		-	\dashv	-+	-	-	+		+	-+		\dashv
ING	RIG UP/RIG DOWN	\dashv	+	\dashv	-+				-	\dashv	+		\dashv	-+		\dashv
3111				\dashv	+	\dashv		_		\dashv	+		\dashv	_	\dashv	-
ō		1974	1-15	1-16	1-17	1-18	1-19	1-20	1-21	1-22	1-23	1-24	1-25	1-26	1-27	1-28
			- 1		1	1	- 1	- 1	!		ı	1	1	- 1		ı

Page 2 of 8	Comments	Transport Rio - Set in Camp	Transport Rig - Set Up Camp	Transport Rig - Set Up Camp												
	Operations at 6:00 a.m.				Rigging Up	Rigging Up	Rigging Up	Rigging Up	Rigging Up	Rigging Up	Rigging Up	Rigging Up	Rigging Up	Rigging Up	Rigging Up	Rigging Up
WEST EISH CREEK NO.	W O MAT./EQUIP.	24	-24	24		_	_	-		_						
REEK	DIR. WORK					-	\dashv	-	_	_					_	
3	SOUEEZE CEMENT				-	\dashv	_				_					
SIE	PLUG BACK		_	1	\dashv		_	_	-	-		_				
별	TSO	\neg					-		\dashv		\dashv		_	_		
ا ا	СОВІИС				_		\dashv	\dashv			\dashv	-+		_		—
OPERATIONS, INC.	FISHING		-	\dashv	_		_	\dashv			-	\dashv				-
ONS	LOST CIRC.				\dashv		-	+	-	-	-	-		_	\dashv	
ATI	CHANGE BHA				+					_	\dashv			_	\dashv	
PER	TEST BOP		7				1		+	-	-+					-
	NIPPLE UP/DOWN BOP	\dashv		\dashv	\dashv				+		+			\dashv		-
Y NPR	M O C		_	_	_	\dashv	\dashv		\dashv	寸	\dashv					
HUSKY	CASING & CEMENT	_	\dashv		1	1	-	1		-		十	\dashv		\dashv	
	LOGGING				1			\dashv	_	+	-		\dashv	+	\dashv	
RS)	CIRC. & COND. MUD	_	\dashv		\dashv		\dashv	7	\dashv		+		\dashv	_	+	
100	हा49∃Я ठाя	7	T	1	\dashv		-	+	1			_	\dashv	-	\dashv	[
ANALYSIS (HOURS) -	RIG MAINT.			1	\dashv	7	\dashv	_	-	7	\dashv			-	\dashv	-
LYSI	DEV. SURVEY		1				-	+		-+	\dashv		_	\dashv		-
ANA	діят	1	\top	_			\dashv	-	\dashv	\dashv			 	\dashv	\dashv	-
TIME /	вермійс		\dashv	\dashv	1		1	-	\dashv		+	+	1	\dashv	-+	-
T 1	סאוררומפ	_		+	\dashv	+	+	1	+	+	\dashv	\dashv	+		\dashv	-
LIN	RIG UP/RIG DOWN	_	1	+	24	24	24	24	24	24	24	24	24	24	24	24
DRILLING	3TAG	1-29	1-30	1-31		2		4	2	اي			7	\dashv	\dashv	— <u> </u>
		<u> </u>	4	-	2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-8	2-9	2-10	2-13	2-12

Page 3 of 8	Comments	Preparing to Spud	Spudded at 9:00 a.m.			Kunning Schlümberger Wireline Logs	Ran 13 3/8" Casing									
). 1	Operations at 6:00 a.m.	Rigging Up	Rigging Up	Drilling	Circulating	Trip In	Running Casing	Nipple Up B.O.P.	Nipple Up B.O.P.	Nipple Up B.O.P.	Trip In	Drilling	Drilling	Repairing Rig	Drilling	Drilling
X	ОТНЕЯ	12		7.			315			2	2					
WEST FISH CREEK NO.	W O MAT./EQUIP.															
1SH	DIR. WORK															
15.	SOUEEZE CEMENT															
F.	PLUG BACK									-						<u> </u>
	TSO									\dashv						
'	совіие				:		1			1		\dashv				-
ž	FISHING								-			┈┼		\rightarrow		-
OPERATIONS, INC.	LOST CIRC.						\rightarrow	_					\rightarrow			
9	CHANGE BHA								\rightarrow	-						
ERA	GOB T23T	-	1;			j	\dashv				-	\dashv				
	NIEBLE UP/DOWN BOP		-							<u> </u>	-764					
NPR	- O M							15½	24	∞			_			
Ž ≻	CASING & CEMENT	\dashv														[
HUSKY	Госеіме						12	ξ	_				-			
	CIRC. & COND. MUD					1412										
URS				12	63,2	£,	23	-250						*13		
(HOURS)	RIG REPAIR				23						30			445	-	
	RIG MAINT.		منہ	~13 —1					į				-A21			
ANALYSIS	DEA SURVEY		-1-								(rel	142	- 27			
ANA	 데워T			: 1 	33,	ς,	9	á		45,	9	2	41,2	7 4	4	4
	REAMING				4.2									-		- 1
F	- סאורדואפ		134	161	6.;						2	2012		6	20.	191
Ž	RIG UP/RIG DOWN	12	7					-				, ,	Ì	-		-
DRILLING TIME	3TAG	2-13	2-14	2-15	2-16	71-2	2-18	61-2	2-20	2-21	27-22	2-23	2-24	2-25	2-26	2-27

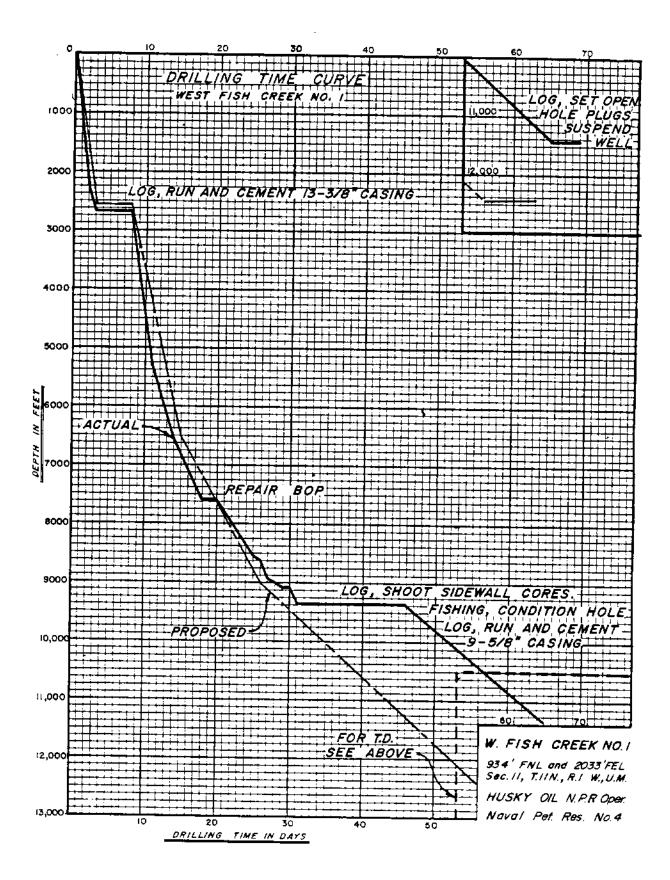
Page 4 of 8	Comments						Malfunctioning Blind & Pipe Rams	Replaced Rams								Tight Spots
0. 1	Operations at 6:00 a.m.	Drilling	Drilling	Drilling	Orilling	Testing B.O. P.	Repairing Rig	Reaming	Drilling	Trip for Bit	Drilling	Trip Out For Bit	Orilling	Drilling	Drilling	Reaming
EK N	W O MAT./EQUIP.	1								13			11.5	Ϋ́	115	
WEST FISH CREEK NO. 1		1														
FISH	DIR. WORK									_						
EST.	PLUG BACK	i										_	_			
-	DST DIST				_	_										
	СОВІИС								_							
Š.	EIZHING								$ \bot $	_						
15,	LOST CIRC.															
ERATIONS, INC.	CHANGE BHA	<u> </u>		_	-	_						_				
ERA-	TEST BOP			_	_			_					_	_	\dashv	
)do	MIPPLE UP/DOWN BOP				_	123	72	_			_	_				
NPR	D O M				_					_	\rightarrow	_	_	\dashv	\dashv	
	CASING & CEMENT			_	_	_		_		_		_	\downarrow			
HUSKY	FOREINE					_	_	_		_		_		_		_
	CIRC, & COND, MUD					\rightarrow		_		_		_	_	_		
URS	RIG REPAIR				5,4	,01		-		\dashv		_	<u>2</u>		~	_ 2
\. \. \.	RIG MAINT.		-	-4*	-	72	- 8		7	\dashv		_	74	x		_
/515	DEA. SÜRVEY	2 ≟	-Agra	-tem	73.7		\dashv		\rightarrow	_	\rightarrow	- [_	_	-74	X
VAL	418T	-	103		7.7		ını	_	- 10	-74	74	8	_			
E An	REAMING		2 10		77	4	213	7.0	23	13	-27		9 ≟	7,7	6	43
Ē ⊢		212	77	~	25		\dashv	123 64	9	75 1.54	201	ξ, 1,1	\dashv	17.		7,7
NG.	RIG UP/RIG DOWN	-2	7	22	==	_	\dashv		81		223,	=	₹.	187	10%	-25
DRILLING TIME ANALYSIS (HOURS)	DATE	2-28	3-1	3-2	3-3	3-4	3-5	3-6	3-7	3-8	3-9	3-10	3-11	3-12	3-13	3-14
			<u>''</u>	26	· '		,				'"	'7		ال		

		7	7	T	т-	Τ΄.	1	$\overline{}$	1	_		-	_			
Page 5 of 8	Comments	Running Schlumberger Wireline Logs			Lost Weight & Pump pressure	Fired Freepoint Misfire POH	Ran Dialog Junk Shot Fired & POH	Drilled Bridges	Drilled Bridges		Ing Ran DIL	6			ing	CBL/VDL/CCL/GR
	Operations at a.m.	Logging	Logging	Drilling	Fishing P.O.H.	Fishing	Tripping	Reaming	Reaming	Tripping	Conditioning & Circulating	Casing & Cement	Cleaning Mud Pits	Drilling	Conditioning & Circulating	Logging
9	OTHER	1					75				3	×		ž		41/2
WEST EISH CREEK NO.	W O MAT. /EQUIP.															
L CB	DIR. WORK						Ĭ									
FIS	SOUEEZE CEMENT														7	<u></u>
EST	PLUG BACK												_	\neg		
	TSO]				1			7	1	_	_		
Š.	СОВІЙС							1			1			\neg	-	_
4	FISHING			ň.	75	21	1	_	\neg			\neg	-	+	-+	-
ONS	LOST CIRC.			\neg	+		_			_	+		\dashv	\dashv		
ERATIONS, INC.	CHANGE BHA					\dashv	_		-	$\neg \dagger$			_	-	\dashv	_
OPER	TEST BOP		Ť		_				+		-	-	77	\dashv	-	
	NIPPLE UP/DOWN BOP				十	+	-+	+	十		\dashv	\dashv	-	-	\dashv	
ž	э о м					\dashv	-+	\dashv	+		\dashv	\dashv		- +		
HUSKY NPR	CASING & CEMENT	-	_				\dashv	_	-	\dashv		163	6,53		\dashv	
	FÖGGING	₹	77	+		_	╅	1	+		}	큭	+	3		
(SS)	CIRC. & COND. MUD	-	_	272		~	2	_	53	9	-71	-0		_+	<u></u>	4
T) OF	RIC REPAIR			4	-	7		-	-	74	- 	-+	┪	7,4	_5 <u>6</u>	-
S.	RIG MAINT.	_		1	_	+	-	-	- -	- }-	-	+	\dashv	\dashv	\dashv	-
, YS1	DEV. SURVEY	1	-	\dashv	-	+	+	\dashv	_	+	-		-{ -	\dashv	\dashv	
ANALYSIS (HOURS) -	qıяT	4.2	Z.	<u>_</u>	₹ <u>4</u>	-	133	+	rM±	E]	\dashv	\dashv	45	77	ž	
AE A	BEFWING	+	<u> </u>	╣-		+	╬	23	/½ 103	75	*		4	4	<u>~</u>	101
TIME	DBITTING	\dashv	-T	+	-		7	- 5	$\overline{}$	7		_	 -	+		-
DRILLING	RIG UP/RIG DOWN		2	9	+	\dashv	-		_	+	- - -	\perp	\dashv	80	-+	_
31.	DATE	+	+	\dashv	-+	\dashv		+	+	+	-	- -	\dashv	_	\dashv	_
		3-15	3-16	3-17	3-18	3-19	3-20	3-21	3-22	3-23	3-24	3-25	3-26	3-27	3-29	3-79
		_ <u>'</u> -				1						<u> </u>	- 1			_'

					Γ		Γ	T				_	Γ			
Page 6 of 8	Comments		CBL/VDL/CCL/GR													
	Operations at 6:00 a.m.	Circulating WOC	Drilling	Tripping	Drilling	Drilling	Trip in	Drilling	Drilling	Trip Out	Drilling	Orilling	Trip Out	Drilling	Trip Out	Drilling
9	ОТНЕВ		3			14			, ¥	14					-	
품	.91UQ3\.TAM O W					_										
WEST FISH CREEK NO. 1	ов, мовк				•	_								_		
	SONEEZE CEMENT										-		-		_	-
SI	PLUG BACK			\dashv										\dashv		
3				\dashv								\dashv				
.'	CORING				_								_			
N N	EISHING				_	.,					_					
RATIONS, INC.	LOST CIRC.															
Ď																
₩.	CHANGE BHA		$ \bot $										_	ļ		
OPE	908 T23T	-74			}			3			Ĭ					
NPR	NIBBLE UP/DOWN BOP		Ī												\neg	
z -	л о м	8	1						1						\dashv	
HUSKY	CASING & CEMENT		$\overline{}$									-	7		_	
Ŧ	гоееіие	7.7	<u>z</u>							- 				_		
	CIRC. & COND. MUD	mage						-			-	\dashv			\dashv	\dashv
OU.	віс вердів	-										\dashv	\dashv			
=	RIG MAINT.				-			\dashv			ا ہمر		_		The	
ANALYSIS (HOURS)	DEA: SUBVEY		-			-%	7/4	\dashv		-		_		\rightarrow	7/4	
IAL)	- GIAT	mJ±					74	-7/4		-		.~.	-X*	_	-374	
A	REAMING	25	1215	123		² 79	79		∞	8	25	12/2	7,7		3	-2
TIME				3.3	_		-7/4s	- T.		-7/4		_	-;~		~~	
ပ္		و	7,0	^	19	151	161	13	15.	7	18	2113	153	24	15₫	22
DRILLING	RIG UP/RIG DOWN															
DRI	ЭТАО	3-30	3-31	_	2	m	4	نم	9	7	20	9	4-10	4-11	4-12	4-13
		۴.	-ب_ 	4-1	4-2	4-3	4-4	4-5	4-6	4-7	4-8	4-9	4	4	4	4-

Page 7 of 8	Comments									pn	Running Schlumberger Wireline Logs		Set Pluqs 1, 2 & 3	Laying Down 9 5/8" Casing Set EZ Drill Retainer	Rig Released at 12:00 a.m.	
0. 1	Operations at 6:00 a.m.	Trip In	Drilling	Ortlling	Drilling	Recut Drilling Line	Drilling	Drilling	Orilling	Circulate & Condition Mud	Loggina	Trip Out	Trip In	Laying Down 9 5/8" Cast	Nippling Down	Rigging Down
X	ОТНЕЯ	_=				43						-	43,	13%		
WEST FISH CREEK NO.	W O MAT. / EQUIP.															
FISH	DIR WORK															
EST	SQUEEZE CEMENT			_						_		41/2	1,5			
3	PLUG BACK				\dashv											
	130	_			$ \bot $	_		\perp					[
RATIONS, INC.	COBING				_											
S,	FISHING			_												
OH OH	LOST CIRC.						\Box									
RA	CHANGE BHA															
OPE	NIPPLE UP/DOWN BOP		<u>س</u>	_		\downarrow										
NPR	M O C							_								
	M O C			_		_										
ниѕкү	LOGGING		_	_	\perp	\downarrow		_	æ							
- (CIRC, & COND, MUD		_		_		_			07	213			74		
URS	RIG REPAIR	_		_		_	امر	_	2	m		4	_7	ma.		
ANALYSIS (HOURS)	RIG MAINT.		_	_			_	_					74			
515	DEA SURVEY					_			\perp		4	-27				
ALY	918T	7	74		_	_	-74-	_	_	_			_	_		_
Ą	REAMING		6.3	77	445	C)	5.5	_	_	- 6	232	123	163	86		[
TIME	באודרותפ		-27	-7/4	_Zr	-	٠,χ٠	_	513		_	4.			\perp	_
DRILLING TIME	RIG UP/RIG DOWN	4	133	91	5	143	-	_		132	_	ابد	_		\dashv	_
I L L I	DATE	\dashv	\dashv	-	_		-	24	8			\perp			24	24
OR		4-14	4-15	4-16	4-17	4-18	4-19	4-20	4-21	4-22	4-23	4-24	4-25	4-26	4-27	4-28

Page 8 of 8	Comments														
	Operations at 6:00 a.m.	Rigging Down	Rigaina Down	Rigging Down	Stacking Out Rig	Stacking Out Rig	Stacking Dut Rig								
WEST FISH CREEK NO.	ОТНЕВ				24	24	24	5043	_						
REEK	W O MAT. /EQUIP.								o-						
SH (DIR. WORK							ģ					_		
ST F	SOUEEZE CEMENT								83						
3	PLUG BACK							φ							\neg
	TSO								٥				Ī		
ÿ	СОВІИС	_]		i											
<u>ا</u> = ا	FISHING							7	344			İ			_
PERATIONS, INC.	LOST CIRC.									П					$\neg \neg$
A⊤	CHANGE BHA		_			\neg		ऻॱ	-0-		7	-			
PER	TEST BOP						1	36%			-			-	
0 %	NIPPLE UP/DOWN BOP			- 1		1		— ["	4712			\dashv			
Y NPR	MOC					\dashv	_	144	4			\dashv		\dashv	
ниѕкү	CASING & CEMENT								4715	\vdash	-			\dashv	
	гоееійе	\dashv	-	\rightarrow				9214					+		-
(5)	CIRC. & COND. MUD				1				110				+		
JO O	RIG REPAIR	_	-			-	+	563	1	 	\dashv		\dashv		—
c c	RIG MAINT.	\dashv				-	\rightarrow	<u>r</u> v	₩.						—
YSI	DEA ZOBAEA	\dashv			\dashv	1	+	24%	•		\dashv	\dashv	+	-	-
NAL	діят	\dashv			\dashv	\dashv	\dashv	$\overline{}$	3974			-	_	\dashv	
E A	BEAMING	-+			+	\dashv	\dashv	—{ —	36				-+	\dashv	
	рвіггійс	+			- -	+	\dashv	86½	663%	<u> </u>	-+			_	
DRILLING TIME ANALYSIS (HOURS) -	RIG UP/RIG DOWN	24	- 52	24			+	 	99		\dashv	\dashv	\dashv	\dashv	
31.6	3TAG	_					\dashv	459	ન જ.		\dashv		\dashv		
<u> </u>		4-29	4-30	5-1	5-2	5-3	5-4		HOURS]



DRILLING MUD RECORD

Indigning to the second	<u>.</u>	Husky Ofl			<u> </u>	10.1.34		1044401	:	#4 MGE	i	in in		DC#741	17-1/2-	#17
	1	Pash C	Msh Creek #1			H.A.	ः जः		:	3	13-3/8"	8 2,616	i Vol			
must seek the Commission of th	***	Parker	Parker Woold (Panks (Sharm	Ę.	<u> </u>	North Slope	Slope			i <u>t</u>	**************************************					
DATE DEPTH WT VISCOSITY FV 1	7. CELS	-	1000 to 1000 t		SALT WPAN OR CHLORIDE IPPMI	5 (with the state of the state	5.° 3.°	SAS 40M	Sarice Series	- COR	ART RES	CO CAPS	STIEME	/cost/	TOTAL MUD COST	REMARKS
2-9 RICKING UP.			; -	-		:			+	+	╁┾	+		#	\dashv	
2–16 RESSEARCE IPP. 2–11 RECOLUNG OFF	:			·	: :		- :					+ + + -				
2-12 Ritative UP	<u> </u>	•			!										-	
STA JEST JES STAN OFFIS SUIXIM ET-2	HUM FOR		PRESSURE TEST, NIPPLE UP	NIPPLE	5	•	. <u>i</u>	- +	38	13	.~	-	++			
2-14 811 9.3 35 41-4	14 12	801	15 21		1800	190	- 61		쯢	8		+-				
2-19 1746 9.8 49 2 22 [Australation] # 1015 hrs.	\$ 53	м. фі	.A	ξ.	0001	<u>.</u> †		7	94	7	-		:	<u> </u>		
3 61 91 91 10 12 B.P. Cab. Jained		26 9.0 au	ू हे. हे. हे जिस्से हजत	ŭ	049	:	9	-	3	9 02		[=F]	1	+++		
2-17 26.2 9.9 49 18 19 19 6 14.6 14.6 14.6 14.6 14.6 14.6 14.6 14	4. 6 15.	1 9.0 ×	7.6	31.1	20.		: 	4		⊹ri 	-					
9182 प्रावस्त कार्यातम् । १८० मा १५०० । १८०० हो १८५५ १५५५ १५५५ ।	0 2 13	'60' 50i	6.6 2	2 0,7	700		∞:	7		2		 		+++		
2-19 3625 8.6 30 2 2 2 1 Ceneptify 1.0 1418	7	1 10.0	<u>8</u>	3.6	800	100		,	w.	. 1	2					
2-70 3625 8.9 44 6 5 2		3 SMACO panel		7	Q,		157	~	3	2	2					
2-21 2625 8.6 37 10 1	13 1 3	9.6	11.0 3	1.1	300		=	-		+:	-	\div		+	-	
25.22 2739 8.7 36 15 5 1	<u>ئ</u>		. K b 3	 		- 2	:		3	3	<u>ب</u>	7	A	1	+	

DRILLING MUD RECORD

4 24			☱	3		:	:				1	1011		ĺ	Market	1		NA NEE			ľ	3316		aft fa				21.4
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	•				Hus	Husky 011											··							112	12-1/4	:	į
100	The second of the second of the second			•	:	5	Fl whereast #	=			<u>:</u>	Q#CMIN	4						-	8/8	×	9190			2	12.174		
	2			_:	THE REAL PROPERTY.	1	יום בבי	7:			1	.Juna	<u>.</u>		:	!		;	international	o i =	4		!	į	4		:	
Ar-20 wob int Util/Nater/Sperserve	Ar-20 Mater/Sy	is Species	3	÷	H. P. L.	Parker	ker '				1		North Slope	9					FRODUC FION	Š	į	ļ	!					İ
DOME SHAD						1	Wedel/Sharp	} / a	arks			Ala	1 aska						i	,	-32							
DAIR DEPTH	\$	VIXCOSITY SEC CPS	3	4	₹ <u> </u>	٠, <u>ء</u>	£	ftuib 1055	CAKE	₹ ₹	CHLORIDE (IPPAG	24.8 Q.e.		3/7/3/ 3/7/3/3/8/3/3/3/3/3/3/3/3/3/3/3/3/3/3/3/	3 .73	100 mg	XX.			PARTY.			COST	~28	TOTAL TUD	REMARKS.	ij
2-23 3945 9.4 43 10 9 Drilling ou wy from 8144 to 4343	4.4.9.4. 1.1.4.9.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	- 7t =	23	200	-	6	10,5		0 E	0.7	2005		-	_	4	2	h.	\$		-			—	+				
7-24 4568 9.7 40 17 14 1 Trip lout OK, 50' of fill point bapk 1	7.62 - 32	- L	<u>∺</u>		_ 1	<u>-</u>	10.0	7.8	m	0.7 10	gon	: •	i on	-		25	3	<u> </u>	3				+	+++				:
Trip out to change to rock bit	3.6 4 ansk	<u> 3</u>	<u></u>	20	٦-	-31	<u>э</u> ,	7.8	- CI	9.0	950		- 00	-:	+	3	<u>.</u>	90		+ -			+++					
Act allowing		45		501	a	m m	9.5	6.0	CI CI	0.8 500		: 	-7	: '	7	32.7	;	20	N			1		† † †				
6600	9.6	9		20	~	-	10.0	0.9	7	1.1 40	<u></u>	race 4	+	:	-:+	2	<u> </u>		-7:	-		++	+			i !		
(:¢ 6850	0t (f. 6		φı	ص 	-	- 	2,6	8	2 -	0.6 450		i ace	-	<u>: </u>		8	++	'n	Да.,	+		<u>• </u>		-	;			
4-1 7031 1-3	9.9	~	<u> </u>			<u></u>	9.5	F-9	2 0	0.3 450	 g		<u> </u>	:	7 7.	25		_7_	ल			++	+ -					
15-7 7370 9.8 48 30 15 1	± 18.€ 10. 8 ±	8 8 8	or in	<u> </u>		2 H	Soltex	7	- N	0.3 450	OZ.	-	g			7	- 	'n	, A E	3		<u> </u>	 	 				:
5-5 7510 9.7 41 Secon weighting ap	9.7.9 de 3ac		ဆ	Э Т	-	1*1		.=:	2 5	3 450			g.		3/5/	₹.	-	.3	2.	3:			+++	1,	1 1			
5-1 7597 10.0 41 B B 0	10.01 (12.0)	14.1 L'S (dua)	22 3	7 T	o io	7 7	8.6 8.8 8.8 8.8 8.8	5.8 mtx	- Z	.5 600		race		•	200 80	2	· i ·	1	37	3					. :			:
19 10.01 10.0 12 10.0	10.01 H.P.		_==. _==	303	5		5.5	81 81	- 0 -	0.5 600		race	-ਜ਼			!		- · · ·				++	+++	1				
3-6 7788 30.4 43 9 8 0	30.4 4 or Hill	 #	ار د	20 1	o z	24	0.6	5.1	2	0.4 550	Si Si		Я		9	A		, 6 9	<u> </u>	<u></u>				+++-				: .
 		_	_	_		—	-	-:	-#			7	-	-		4	=		\exists					-				

DRILLING MUD RECORD

	Charles and Control					ACT TON									
The same of	-	011	,							_ -	UNFACE	:	į	:	i
	Fishereck #1	ck #1			. 3	NPR #4	- ਵਾ		!	:	13-3/8	26161	12-174	!	į
Spensone/SP-20	Farker					North Slope	Stope	!			PRODUCTION	i			i
-	2/1-3D=M	/Sharp	ļ			Alaşka -	g			1	M / / M /	20			
W	3 <u>z</u>		FLUID LOSS	# CAKE	SALT IPPMI OR CHLORIDE (PPM)	S wai in a	5₽ g₽	* 10 mg				*	/ cost/co	TOTAL MUD COST	REMARKS
3-7 79.00 10.8 47 13.10 113.00 10.8 47 13.10	- N	9.0	:=: ::::::::::::::::::::::::::::::::::	7.0	200	80	2	7.097		দূ	30.5.10		'		
7385 10.7 % 1600 rt.		10.2 4.6	.ci	9.0	009	100		25.		ঝ	22	• • • • • • • • • • • • • • • • • • •			
320.3 10.8 4B 30.14	<u>~</u>	10.1 2.9	<u>را</u> د	0.7	550		18	509	<u>m</u>	3	21 231 3				
3-10, 8075, 10.9; 43, 23, 35, 25, 35, 35, 35, 35, 35, 35, 35, 35, 35, 3		swabbing, D-Silid log of mad. Note	4.2 5 D-SED 101 Note		n.8 550 rurable to c	lear vo	17 rolume of AdJ 2	1 /45	3	2.7	~				
8-11, 622 1.11, 832, 11-8	2 6	10.3 4.B	80.	1.0	700		II tr	\ ₹		<u>~</u>		· ·			
04 72 05 1.11 2200 1.1-t		6.5' e.or	- 5 <u>-</u>	1.0	909	,	17 17	##C#4)		89	1435.24		-	 	!
3-13 B375 11.49 to 14.3 Trouble getting out of hube on thip -		8.8 3.8 stands	. 8	0.3	9009	Lrace	17 Lr	700			9				
Fig. 90cb 11.7 6. 19 10 .2		- 6.0 Sta	5.0 2	. 0.B	Boo		91	7	· 제 _	,g	7 8			1	
J-1, 9068 negling, piranci had jethe] jetbed	nts, 4	dec 1 dec	17.47	deeper	133	, ii	=					· ; i	+	İ
01 (21) 02 1.11 0019 31-2	1 1 6	0.6	<i>⊐</i> .	1 0.5	900	trade15	- 515	1 2/5/2	*	3	<u>स</u>	<u>.</u> :			
11. 3 79 31 14 2 903p., telested off dollar	2 9 dollars,	12.0	3.8 17 = 1	1 3 1 =3/18	009	:	17	1 410 A	¥	7	1251	<u> </u>			.
9270 11.3 79 42 18	о. -т	11.0 3.6	3.6		009	<u>.</u>	<u>. </u>	1 77 K	32:	737	**************************************	·			
97/0 11.5 59 79 11. 4 Drygoed charge at after congest	ounecting	10.0 11.0	. 5	2 1.7	800 pipe and	8.≦	17	1 43		<u>'a</u>	47	· · ·		<u> </u>	

DRILLING MUD RECORD

12-1/4	8-1/2	REMARKS	•						•	_					
2616	9215	COST MUD	;			:			:	. !		!	:	:	
13-3/8	8/4-6	1 2 1 2 1 2 2 1 2 2 1 2 2 2 2 2 2 2 2 2	7	7						2				2 2	 ©
3 2		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2	H 19 33 5	7 2		3		\$ 9 -	5. On	£	77	4	2	
.1004.44401	North Slope Alaska	25. 200 200 St. 200		14 LT 14 11 81	1 (0)	977 / 1/10	()	1 7084	1 19011	27 (00) / 27	OK (10%)	7	× ×	11 30 14	8
NPH.	North Alaska	i ALCIA (PHAV	. 06 	£ £ 	γı Bα		81	71	9 007 :				4	<u> </u>	11
		P. CHONDE	1.0	1.0 600 sel p11	0.6 600	1.4 650	1,4 650	1.4 600 rturn	1.8 600	009 6.9 to	5.5 700	4.6 700	3.6 800	2.4 800	1.4 1300
Hustrey (41) Fishereck #1	Parker •••• Wede±/Størty/Parks		10.0 3.2 2 -3/24	10 9.9 4.4 2 1.0 64 Loack in politing dipsel pil	5.5.3	3.9	3.9 2	(-75 977) [1.5 114] 15 23 5 10 9.5 3.7 2 1.4 and a new ted a return of a free free factor. Sensor feet free free free free free free fre	10.9.4.6 2 1.8	20 11.2 12.8 h 5.9 Jetted per order of co.	10.5 13.2 4	10.0 10.4 3	11.0 6.4 6.9	7, 9,4, 0.51	1.5, 6,4 0.51
	1	7 PV YP CALS	0.07 Tupped a fine share standard branching of the standard branching	of transcription of the second	20 30 1 ng ng	for the state of the state of the second of	And sured that for 191 parenting previously	53 / 5 10 9 / 5 10 10 0	2: 1: 4: 4:	aE¦binin ¦on throndia: 90 € o o∵			Fig. 18 3 P	? . 0 91 m	[36 [6] h
	with their District XP-20 contracts and T-10-77	A AUSONIA ME ANT THE	70 11.3 74 able problem sha	8-21 was 11.7 74 10 497 5 Pielog to depart of 9005, may to amili	e. 1 [904] [11.0] [109]	70. [11.6] 198 Ethin 70] of Bal	6, 11.5, 107 rection for get	8-15, 9,70, [11,5] [14] Soling thin, Root returns	5-4- 9775 9-9 60 E	1.7 9.75 10.5 36 0 6 3 Incliner our 1000 It of contents normal	[16 [6:0] Weel 80-6	18 MIG 2018 WH	for a graph of the second seco	\$ 9 [16.0] [11.0] 62 [-1 52 0.0 July 52

DRILLING MUD RECORD

<u>.</u>			3	1	H (F) B He harri	Husk	Rusky Oil					6.03			1			-				ž	-	ī				-
3	The second second		¥	<u>.</u>		Fish	Fishcreek #1	۲,			-	311	NPH #	-					13	13-3/8			2616			. 12	12-1/4	
Spensone/XP-20	Subsue/	(F-20		<u>-</u>		r. Farrker	<u>.</u>				•	LIMPOY	North Slope	Slop	ı,				14	9-5/8			9215			ප	8-1/2	
FF-HI-Emmerator	14-77			<u>-</u>	a company	Wede]		Steurp,	Parks	27		:	A Jaska	_			İ		PRODUCTION	No.	!		: 4				٠	
THE TANK	 	VISCUSITY SEC CPS		*	3 -z	ے ۔۔۔۔ <u>۔</u>	£	FLUND	3×2		SALT IPPAN OR CHI ORIDE IPPAN	CALCIUM	Ža	5°	22.00	2000 2000 2000 2000 2000 2000 2000 200	- 100 M			263	A STORY	100 mg	Stor.	/cost	7.00	101AL	REMARKS	ž.
11-3 9500 10.9 52 33 5 5 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10.4 20.1 20.1 14.4 14.4 14.4 14.4 14.4 14.4 14.4 1	undo a	21 ts 30 ts cvl. xr national,	11 15 75 25 25 30 12 25 25 25 25 25 25 25 25 25 25 25 25 25		- 0 1 4 2 2 4	11.0 4.4 9.8 4.0 verthamre] fradequate,	F-10 -		2 1.2 17 2 1.0 16 st week regds repair	1700 1500 patr	L	13:11	11	가 (<u>황</u>	2 (3	55	= Ai 'Ω	\$ B		<u> </u>	<u>0</u> 1					: 1	:
70/6 5-h	9/uz 4.01 20/6		8 97		.т.:	- 	9.5	5.5	2	1.0	1450		24	<u> </u>	· .				- 1					:	!		į	
4 c 97 u	42 2.01, U YE	 FS			7 74	` 	. 5,9	5.5	۸.	36;	1500		12 4	<u> </u>	લું ડુ	<u> </u>		٠-,	7: 5 34 p			:	÷ .	: :		ļ .		. :
ात्त्र 9838 10,4, 51 21 6 - 2 स्थापेक काळापुडीय व्हास स्थास	. 101.4 12.12 12.12	51. EA.: PM	12 12	ر 1913ء		्र जू	u 9.2 u.7 spape confing to	4.7 Ing 1	~ 2	2 0.7 N/AV=not	1500 t available	ble	N/A/N	- 	<u>a</u> -	<u>G</u>		<u> </u>	5		-					: :	i	, 1
4-8 4.04, ROY	2	Lh	.F4	۔ ۔	74	- ~ '- 	8,6	9	74	Ď.	0091			ţ.	-	F				-				•			:	
1-9 10001 10-4	10.4		54	·	, N		10.6 4.0	4.0	Ĉ.	1.6	0091		12 12	٠.	<u>}</u>			9 1	<u> </u>			-		!	1	:	:	
11-111 10051 10.55 50 12-10 50 12 12 12 15 15 15 15 15 15 15 15 15 15 15 15 15	-4.50 (84 (84)	- 05 ti	97. 10. 1.00	_ 2년 및-		ر القار القاليات	4 10.2 3.6 2 1.1	3.6 oss s	2 7000	<u> - 3</u>	1500 raica-r		2	<u> </u>	<u>&</u>	\$, ~(· .	- 3	- K-1		- -				11
Th 10400 11-4	0,10.4		윉	9	~	<u>.</u>	0.6	4.0	Ċ	8.0	1600	. 80	12,	<u> </u>	- 6		1 1	. 0	į	<u>.</u>	<u>: </u>			1 1	1			1 .
H-12 10480:10.4		ļ.ļ.,	3		٠,		10.01	æ.~	. Na	1,2	1400	٠,	17 21	<u>.</u>	<u>, </u>			- :						•				
# 13 JUST 21 P		 F	81		2		10.01	- 7	^u	1.2	1800		12 tr	£)	ē 0	_	5 0			-			:	!	.		
1-14 107/30 10.4		 2	77				10.0	ы. 8	5	7.0	7000		12 tr	 -	2	- 0		<u>-</u> -	= \ _\	۳3	۰۲			: .	:		İ	
4-15, 10840'10.4		3	21	<u>—</u>	~ - ~V		10.01	9.1	ru.	0.7	2500		Ē	<u>۔ ۔</u> د	<u> </u>	3			7 _	<u></u>	4 -			•			: :	
4-10 10959, 10.4		į <i>L</i> h	3	4	~ ~i	<u></u>	2.5	₽.¥	N	0.5	2600		<u>a</u>	. 5	, <u>{</u>			<u>†</u> 'v	- V	^	i k			+				:
1-17 130'5'. 10.4" 49	10.4	 	8	.5	~		10.0	न :	Ŋ	0.5	3400		. 9	-	3_	-	<u>. </u>	<u>; </u>):	7				!!	1 :	

DRILLING MUD RECORD

Transmit Transmit	The Party of the P		Husky oil				1011316		10+14	į	4	Bankit		11.5	ļē	0.00	
		_	oreck #	-			N.	₩				<u> </u>	7.3%		ž	916	
11 5 2 5 9 4 4 18 2 1.8 3100 13 cr. 444 39 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	months (specialne/XE-20) continue (*14-77)	Parke	5 5		5		•	orth Sl	8 .			i org	23/8		9,	215	8-172
11 5 2 5 9 4 4 4 5 0.6 90 40 12 UT 40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	VINCENTY IN		Ĭ.	1 30			1 2 2			P 07	N 3	- 34	77.0	3	9	COST, MU	Ļ
12 tr. 1 42 3300 12 tr. 1 42 4 38 100 13 tr. 1 42 4 38 100 13 tr. 1 42 4 38 100 13 tr. 1 42 4 38 100 13 tr. 1 42 4 38 100 13 tr. 1 42 4 38 100 13 tr. 1 42 4 38 100 13 tr. 1 42 4 38 100 13 tr. 1 42 4 38 100 13 tr. 1 42 4 38 100 13 tr. 1 42 4 43 100 13 tr. 1 42 4	84 9 01 /4111	-	j6	4, 6			- 1	12 15	1	-	<u>-</u> ا√دد	かっ つ つ	30 .az	2,4	.	287	
13 tr 1 34 38 110 110 11 110 110 110 110 110 110 110	otz/v Tuze 47 « stante ovjetenane o		9.3	. t.4				12 tr	- -		. ≥		(%)			1	
9 5 10.4 4.8 2 1.8 3100 12 tr 1 44. 8 2 1.8 3100 12 tr 1 44. 8 2 1.6 3300 13 tr 1 3.9 5.1 5 10.5 5 10.5 5	n- 10 - 17th of 10.6] 56	-		 		,		13	_ -		7-56				· ——		
9.5 5.10.5 5.1 2 1.6 3300 13 cr. 1 2.33 9.6 9.6	(14:7/10.6/15) orcompleted tubo mas	80 9 7 5 Cardonh 114	10.4 75.7	B, 4				12] tr	-	र र		60	<u>!</u>		· - · ·	- -	
9.6	9-37 11/27/10.5, 59 1.0	8 8 8 8 8 8 8 8	10.5					13/tr	_						<u>.</u>		:
9.6			. 10.1						-	. : .	: 		· <u></u>	- i	···		
9.6			6.6		·			· <u>-</u>	<u> </u>	78		 .		-	· · ·	: !	
	olicy raid for l		9.6		·-·										<u> </u>	:	! ! .
···	14,27, 10,34, 55, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10			—	··		·				•			:			· !
							· · ·	· -				_		:			
					-										<u> </u>		
	 `				· :	: !	· · +				· · ·				·	<u> </u>	
					· :		<u> </u>		;		_				: !		:

BIT RECURD WEST FISH CREEK NO. 1

P L M A F F S		Prietica off and stuck	
9.845 7 7 5 G	9.845 7 2 2 C 9.445 6.44 6 C 9.444 7.83 6 i 9.844 6 4 B 1 9.844 6 4 B 1 9.845 6 4 B 1	45 4.55 8 6 49 4.8 7 5 1 49 4.8 7 5 1 51 3.8 4 8 0 52 5. 2 2 0 59 3.2 2 8 15 10 39 3 6 15	Y Y Y Y Y Y Y Y Y Y
1503/491800 2 43 47	45 120 15 0 0 1 62 63 64 65 65 65 65 65 65 65 65 65 65 65 65 65	2300 1 62 2300 1 62 2200 1 65 2200 1 65 2600 1 65	1. CEPENT RETAINE 1. CI CANED OUF TO 2.00
10 71 30 30	29 52 66 42 2254 42 29 45 2004 15 200 45 45 45 45 45 45 45 45 45 45 45 45 45	1135 10. 235 55. 227. 11. 261 55. 2203. 14. 232. 55. 22. 13. 314. 55. 53. 17. 116. 55. 14.3/4 14. 331. 55. 14.3/4 14. 331. 55. 14.3/4 14. 331. 55. 14.3/4 15. 331. 55. 14.3/4 15. 331. 55. 14.3/4 15. 331. 55. 14.3/4 15. 331. 55. 14.3/4 15. 331. 55. 14.3/4 15. 331. 55. 14.3/4 15. 331. 55.	10 10 10 10 10 10 10 10
100293 2226 2122	8899 9509 1 1153	2C-682 7946 349 104EP 8393 239 964EN 8593 240 098FP 8593 240 098FP 9270 202 345-FK 9068 91 391FW 9270 202 345-KK 9068 91	92.20 92.20
			11.10
1.22 KR2 1.72		21 01 17 17 17 17 17 17 17 17 17 17 17 17 17	

INTRODUCTION

After the 1976 drilling season, casing requirements were reviewed and design of casing strings standardized. Every effort was made to minimize weight and grade changes for simplicity, cost effectiveness, and to reduce chances of error during handling and running operations. Casing sizes were selected to accommodate designs for wells from 2,000' to 20,000'. Steel grade selection was the controlling factor on design with low hardness (Rockwell C24-28) steel being selected for Arctic application and possible H₂S environment. Below is listed casing sizes and design criteria required by Husky:

			STRENGTH S1)		MUM PRE EQUIREM (PSI)	
SIZE ⁽¹⁾	WEIGHT	MIN.	MAX.	COLLAPSE	BURST	CONNECTION
20"	133#/ft.	55,000	80,000	1,500	3,050	STC
13-3/8"(2)	72#/ft.	95,000	110,000	3,450	5,350	втс
9-5/8"(3)	53.5#/ft.	95,000	110,000	8,850	7,900	втс
9-3/4" ⁽³⁾ 7"	59.2#/ft. 38#/ft.	95,000 95,000	110,000 110,000	9,750 12,600	8,540 9,200	BTC BTC

- OD tolerance to be within API requirements unless adjustment absolutely necessary to meet ID requirements.
- (2) Special drift to 12.25".
- (3) Special drift to 8.50".

The following are additional requirements primarily to assure that the steel exhibits the metallurgical properties for Arctic applications and resistance to hydrogen embrittlement.

- 1. All pipe that is 13-3/8" OD and smaller to be quenched and tempered.
- 2. Run Charpy "V" notch tests on two random samples per 50 tons per heat. Minimum acceptance of 15 ft.-1b.@-50°F. Furnish test reports with order.
- 3. Perform all testing normally required for API approved pipe.
- 4. Furnish test reports for ladle analysis, quantitative analysis, and all check tests as per API requirements.

In addition, the following handling requirements were made:

- Collars must be of same steel grade as pipe body.
- 2. Apply an API modified thread compound on mill-installed collar before bucking on.

- 3. Inspect at mill using Tuboscope's Amalog IV or equivalent on 9-3/4" and smaller, and at least magnetic particle on 13-3/8" and 20". All pipe to have special and area inspection together with full length API drifting. (Note special drifting requirements.)
- 4. Apply Arctic grade grease on all connections before installing thread protectors.
- 5. Install closed-end type thread protectors. Plastic plugs can be used to secure wrench openings in protectors.
- 6. Buck up thread protectors with impact wrench. Both mill and third party inspection personnel should observe the installation of thread protectors.
- 7. Palletize or containerize the tubulars, if possible, prior to shipment from mill. Do not haul pipe like cordwood in gondola railroad cars.
- 8. All pipe to be Range 3.
- No "V" notching or metal stenciling on pipe body or collars.

Casing for West Fish Creek No. 1 was programmed as follows: 20" conductor at 80'; 13-3/8" at 2500'; 9-5/8" at 8900'; and 7" liner to a total depth of 12,300' if needed for evaluation purposes. Actual casing run was 20" at 104'; 13-3/8" at 2614'; and 9-5/8" at 9216'. The 7" liner was not required.

After total depth was reached, the 9-5/8" casing was cut off at 2465' and recovered back to surface. The 13-3/8" annulus was then left full of diesel from 2343' to surface to allow future temperature measurements by U. S. Geological Survey personnel.

CASING TALLY SUMMARY SHEET

TALLY FOR 13.3/8' CASING DATE: February 18, 1977 ... LEASE & WELL NO. West Fish Greek No. 1

PAGE 2 PAGE 1

PAGE 3

PAGE 5 PAUE 4

PAGE 6

PAGE B PAGE 1

PAGE 9 TOTAL

NPR-4

FIELD

1 50 1914 04 1-2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	COMMISSION OF THE CALCULATIONS	
50 1914 04 1- 20 775 - 27 2 3 - 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	NO OF	OTAGE
2 20 775 – 27 2 3 4 4 6 6 6 8 – 8 6	1 TOTAL CASING ON RACKS	2689 31
2 4 2 3 4 3 7 8 8 4 4 9 1	LESS CASING OUT LITS NOS	75
5 6 7 60	TOTAL 11 - 23	2614
C C C	SHOE LENGTH	-
9 2 8	5 FLOAT LENGTH	 -
88	MISCELLANEOUS EQUIPMENT LENGTH	.
co.;	7 TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 + 4 + 5 + 6)	2617
	LESS WELL DEPTH (KB REFERENCE)	
KIL 9 UP" ON LANDING JOINT		7
31 Wanth indicator halosa summing		

_ - 2617.56 INTERVAL 2 FOOTAGE 2617.56 NO OF JOINTS 89 SUMMARY OF STRING AS RUN THRUNO. 68 LOCATION IN STRING THRU NO THRU NO THRU NO. THRU NO. THRU NO JT NO NO. UT NO ON IL NO. DN IT MANUFACTUREH CONDITION Nes. Buttress THREAD GHADE \$6-5 MEIGHT 72

THRU NO

ON TO

inches slacked off

PAGE 1 OF 2

CASING TALLY

DATE: February 15, 1977 FIELD NPR-4 LEASE & WELL NO. West Fish Creek No. 1 TALLY FOR 13 3/8" CASING

THIOL	FIRST MEASU	JREMENT	CHECK MEAS	UREMENT	WT	JOINT	FIRST MEAS	UREMENT	CHECK MEASL	JREMENT
NO.	FEET	.00'\$	FEET	.00%	GR.	NO.	FEET	.00°S	FEET	2000.
1	40	60			72#	1		58		
2	36	25	<u> </u>		S-95	2	34	95		
3	36	84		<u> </u>]	3	36	93		
4	34	_00]	4	40	87		
5	35	02	<u></u>]	5	38	95	<u>-</u>	
. 6	36	66				6	39	92		
. 7	38	50				7	40	64		
8	34	82				8	41	45		
9	35	90		ļ]	9	36	91		
10	. 39	04				40	41	40		
OTAL A	367	63				TOTAL D	391	60		
		, - ,								
- 1	38	33	<u> </u>	ļ	<u> </u>	1	35	58		
2	36	97		<u>.</u>]	2	41	18		
3	38	05]	3	37	.00		
4	39	96		ļ		4	39	96		
5	38	88]	5	41	20		
6	35	35_		ļ		6	40	35		
7	39	04			1	7	43	81		
8	38	60		<u> </u>]	8	37	66		
9	37	64			<u> </u>	9	36	21		
20	38	33	· <u> </u>			50	36	38		
OTAL B	381	15		<u></u>		TOTAL E	389	33		
		,								
1	39	39				TOTAL A	367	63		
2	37	75				TOTAL B	381	15		
3	40	30				TOTAL C	384	33		
4	42	50				TOTAL D	391	60		
5	37_	92				TOTAL E	389	33		
6	35_	40		ļ		TOTAL PAGE	1017			
7	37	22] ;	FAUC	1914	04		L,

93

64

28

9

30

TOTAL C

39

40

PAGE _2__ OF _2_

TOTAL C

PAGE 2	OF <u>2</u>			CA	ASING	TALLY		DATE:	February	15, 19	77_
FIELD	NPR-4		_ LEASE &	WELL N	o. <u>Wes</u> t	r Fish Cre	ek No. 1	TALLY	FOR 13.3.	<u>/8</u> ." ca	ASIN
TAIOL	FIRST MEASU	REMENT	CHECK MEASL	JREMENT	wr	JOINT	FIRST MEAS	JREMENT	CHECK MEAS	UREMENT	wr
NO.	FEET	.00'\$	FEET	.00%	GA.	NO.	PEET	.00°S	FEET	.00'\$	GH.
1	40	32	ļ	<u>.</u>	72#	1					
2	37	61			S-95	2		<u> </u>			
3	39	53				3		ŀ			
4	41	60				4					
5	39	90]	. 5					
6	33	95				6					
7	36	_66				7					
8	41	05				8		-			
9_	37	88.				9					
60	38	80				0					
TOTAL A	387	30				TOTAL D					
		,					,				•
Ť.	40	84				1					
2	39	43]	2				7	
3	40	_65				3					
4	36	80				4					
5	35	49				5		1		†	
6	40	72				6					
7	38	52				7				1	
8	40	40				8					
9	37	50				9				1	
7.0	37	62		Ĺ		0				† 	
TOTAL B	387	97				TOTAL E		T	_	† †	
					-				<u>_</u>	'	
						TOTAL A	387	30			
2						TOTAL B	387	97			
3						TOTAL C					
4						TOTAL D					
5						TOTAL E					

TOTAL PAGE

CASING OR LINER CEMENT JOB

Lease NPR-4		Well W	est Fish Creek No. 1	Date February	19, 1977
Size Casing13	3/8	Setting Di	epth 2614	Top (liner hanger)	
Hole Size . <u>17-1</u> /	2 м	ud Gradient <u>.509</u>	6 psi/ft (9.8 ppg)	_ Viscosity43	
Casing Equipment					
Howco_Float_		shoe, <u>Ho</u> yd <u>o Du</u>	plex_Collar +ost oca	rted75	feet
above snoe @ 25	543'		FOI collars located at		feet
and .		1ee t			
		centralizers locate	ed <u>2604¹, 2572¹, 2535¹</u>	<u>. 2499', 2430',</u>	<u> 2354',</u>
2284.*2206.*	21311				
		scratchers located	·	— <u></u>	
		- ·· · · <u></u> · · · · · · · · · · · · · · · · · ·	- 	. 	
Liner hanger and pa-	ak off (describ	el			
					-·- <u>-</u>
Miscerianeous (baske	rs ero i	· · · · · -			
Cement (around sho	el				
Nο					
Sacks	Brand	Туре	Additives	Slurry Weight	Slurry Volume
1. 2800	Howco	Perma Frost II	· · · · · · · · · · · · · · · · · · ·		2632 cu.ft.
29 200	Howco	PermaFrost II			282 cu.ft.
Coment through IDV	, FO) Collar at	feet		.,,	
Nο				_	
Sacks	Brand	Туре	Additives	Slurry <u>Weighr</u>	Slurry Volume
;					

Comenting Procedure (around shoe) (uross out where necessary)	
Circulated 464 bbls @ 6 8PM, pumped in	-··
20-bb1_water prewash, used bottom plug type, not, mixed dement (3)	above90
minutes, cement (2) above minutes, top	plug (yes, not displaced with
(cu. ft.), (barrels) in minutes at rate of	BPM, CFM.
(Bumped plug) (Did not bump plug) Final Pressure	Reciprocated
pipe	time
minutes Had	circulation (full, partial,
none, etc.) Completed job at a.m., p.m.	
Cementing Procedure (through (DV, FO) at	ı
Opened (DV, FO) ata.m., p.m., circulatedbbls @	8PM, pumped in
(cu. ft)_ (barrels) pre	wash, mixed cement (3) above
minutes, cement (41 above min	utes, dropped closing plug, d.s
placed with (cu.ft \), (barrels) in minutes	at rate of
BPM_CFM. (Bumped plug) (Old not bumb plug). Final Pres	sure
Displacing time minutes. Had	circulation
(full, partial, none, etc.)	
Remarks: (Third Stage Job, etc.)	
Cemented through Howco Duplex Shoe w/2800 sacks of Permairost	cement. Lost returns
after 2400 sacks. Did top job through !" pipe at 136' from K.	B. Used 200 sacks of
Permafrost cement.	
н. А.	Lund
 	Foreman

CASING TALLY SUMMARY SHEET

DATE: March 17, 1977

... TALLY FOR 9 5/8" CASING FOOTAGE 9202 FEET 9202 9229 23 13 234... NO. OF JOINTS 234 SUMMARY OF DEPTH CALCULATIONS TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 +4 + 5 +6) LEASE & WELL NO. West Fish Creek No. 1 MISCELLANEOUS EQUIPMENT LENGTH LESS WELL DEPTH (KB REFERENCE) LESS CASING OUT UTS NOS. TOTAL CASING ON RACKS "UP" ON LANDING JOINT FLOAT LENGTH TOTAL (1 21 SHOE LENGTH

34 18 88

1346

66 뷺

1959 1959

1984 1952

3 5 5 7

PAGE 3

PAGE 4 PAGES PAGE 6

80,50

1999

NO OF

2

PACIE 1 PAGE 2

SUMMARY OF PAGE MEASUREMENTS

NPR-4

FIELD

....87 S.00

97

8 5

99

65

: inches stacked off Norge : #frem stack-off: 375,000 Weight indicator before cementing: 375,000

8

9202

234

101AL

PAGE 8 PAGE 9

PAGE /

ļ					SUMMARY 0	SUMMARY OF STRING AS RUN					
WEIGHT	WEIGHT GRADE	THREAD	MANUFACTURER CONDITION NEW-USED	CONDITION NEW-USED	LOCATI	LOCATION IN STRING	NO OF JOINTS	T ST	FOOTAGE	=	INTERVAL
	Shoe		Howco	New	JT NO.	THRUND			2.00	2,00 9215.91	9213.91
53,5	53,5 8-95	_	Suttress Lone Star	New	JT NO I	THRU NO 2	2		78.74 9213.91	9213.91	- 9315.17
	Float	Float Collar	Howco	New	ON IT	THRUNO			1.50	9135.17	1.50 9135.17 '-9133.67
53.5	53.5 8-95		Buttress Lone Star	New	JT NO. 2	THRUNO 173	-	9	171 6733.25 9133.67	9133.67	- 2400.42
	F.0.		Howco	New	OT NO	THRU NO.			4.18 2400.42	2400.42	- 2396 24
53.5	53.5 8-95	Buttress	uttress Lone Star	New	JT NO 173	THRU NO 178	· S		201.89 2396.24	2396.24	
	F.O.		Howco	New	on To	THRU NO		<u>!</u> 	61.7	76 716 716 35	

(Cont. d) TALLY FOR 9 5/8" CASING DATE: March 17, 1977 .00.S FOOTAGE. inches slacked off NO OF SUMMARY OF DEPTH CALCULATIONS TOTAL CASING AND FOURPMENT FROM CEMENT HEAD (3 +4+5+6) LEASE & WELL NO. West Pish Creek No. 1 after slack off: MISCELLANEOUS EQUIPMENT LENGTH CASING TALLY SUMMARY SHEET LESS WELL DEPTH (KB REFERENCE) LESS CASING OUT UTS NOS TOTAL CASING ON RACKS "UP" ON LANDING JOINT Weight indicator bafore cementing: FLOAT LENGTH SHOE LENGTH TOTAL II - 2) 4 . أ و S 00 SUMMARY OF PAGE MEASUREMENTS FEET NO OF JOINTS NPR-4 PACIE 1 PAGE 1 PAGE 2 PAGE 3 PAGE 8 PA(JE 4 PALJE 5 PAGE 6 PAGE 9 FIELD IOTAL

	_	_						_
	INTERVAL		26.85 - 20.03	i .	' 			
	FOOTAGE	55 2163 31 2190 14	2,82			- -		
	NO OF	55						
SUMMARY OF STRING AS HUN	LUCATION IN STRING	JT NO 178 THRUNO 233		JI NO THRUNO	JI NO THRUNO	JT NO THRU NO.	ON II	ON TO THE
	CONDITION NEW USED	New V	New		:	;	:	
	MANUFACTUREH CONDITION NEW USED	Lone Star New JINO 178	OCT	K.B.	:			•
Į	THHEAD	53.5 S-95 Buttress						
	NFIGHT GHADE	S-95	Hanger					
	WF IGHT	53.5	_		_			

PAGE 1 OF 5 CASING TALLY DATE: March 17, 1977

FIELD NPR-4 LEASE & WELL NO. West Fish Creek No. 1 TALLY FOR 9 5/8 " CASING

TAIOL	FIRST MEAS	UREMENT	CHECK MEAS	JREMENT	WT	JOINT	CIDST MC 45	10544517	la		,
NO.	FEET	00°S	FEET	2.00	GR.	NO.	FEET	.00°S	CHECK MEAS		
1	40	28			 			 	FEET	00%	GF
2	38	46	··		53.5# S-95	<u> </u>	38	23	<u> </u>	╀	
3	34	, 	·	 	[1]	2	37	93		 	
		86		 		3	38	98		<u></u>	
4	40	00		ļ		4	40	46			
5	38	46		<u> </u>		5	40	23			İ
6	37	45		<u> </u>		6	37	55			•
7	40	78				7	38	71		 	
8	38	27				8	38	72		† —	
9	34	89	<u></u>			9	41	75		┢╌╼╡	
0	38	04				0	38	71		 -	
TOTAL A	381	49	-			TOTAL D	391	 - 		 	
	''					ENTALL		27		<u>. </u>	
1	39	15						 -			
2	41	10					41	13			
3	38	33				2	41	61			
4		- -				3	36	47			
	41	28			Ì	4	40	88	<u> </u>		
5	41	18				_ 5	40	53			
6	37	95		i	İ	6	40	92			
7	37	92			ŀ	7	40	54			
8	38	34			İ	8	40	66			
9	38	99				9	39	60			
0	41	17				0	36	- +			
TOTAL B	395	41				· · · · · · · · · · · · · · · · · · ·	-	34			
		<u> </u>				TOTALE	398	68			

11_	41	04	
2	39	88	
3	40	69	
4	39	78	
5	39	71	
6	35	68	
7	_ 39 _	11	
8	37	23	
9	41	18	
0	38	66	
TOTAL C	392	96	

TOTAL A	381	49	_	
TOTAL B	395	41		
TOTAL C	392	96		1 -
TOTAL D	391	27		
TOTAL E	398	68		
TOTAL				
PAGE	1959	81		

 PAGE 2 OF 5
 CASING TALLY
 DATE: March 17, 1977

 FIELD NPR-4
 LEASE & WELL NO. West Fish Creek No. 1 TALLY FOR 9 5/8 " CASING

TAIOL			CHECK MEAS	UREMENT	WT	JOINT	FIRST MEAS	UREMENT	CHECK MEAS	UREMENT	wr
NO.	FEET	.00'5	FEET	2:00.	GR.	NO.	FEET	.002	FEET	00.2	GR.
1	40	49		<u> </u>	53.5#	1	40	95			
2	38	64			S-95	2	39	18			<u> </u>
3	39	18		ļ		3	40	90			İ
4	41	60		<u> </u>]	4	38	64			[
5	38	94			[]	5	37	97			
6	39	81				6	36	51			
7	39	48		<u> </u>		7	37	58			
8	40	70				8	38	61		1	
9	39	92				9	40	01			
0	40	56	, .			0	34	54		1 1	
TOTAL A	399	32				TOTAL D	384	89	-		
											ļ.
1	39	12		<u></u>		1	40	78			
2	34	88	·			2	39	95			
3	37	91				3	41	56			
4	40	33			- !	4	37	92			
5	38_	53				5	38	85		† –	
6	39	65				6	41	53			
7	40	26				7	37	35			
8	37	00				8	36	60	,		
9	37	87			ŀ	9	40	85			
. 0	39	26				0	37	26	-	 	
TOTAL B	384	81				TOTAL E	392	55			

1	41	31	
2	39	90_	
3	41	06	
4	34	17	
5	40	93	
6	42	08	
7	40	83	
8	38	24	
9	39	92	
0	39	65_	
TOTAL C	398	09	

TOTAL A	399	32	
TOTAL B	384	81	
TOTAL C	398	09	
TOTAL D	384	89	
TOTAL E	392	55	 † -
TOTAL			
PAGE	1959	66	

PAGE _3__ OF _5_ CASING TALLY DATE: March 17, 1977 LEASE & WELL NO. West Fish Creek No. 1 TALLY FOR 9 5/8 " CASING FIELD NPR-4 FIRST MEASUREMENT CHECK MEASUREMENT WT FIRST MEASUREMENT CHECK MEASUREMENT WT TAIOL FEET 00'S NQ. FEET .00'5 GR. NO. FEET 00.2 FEET J.oors GA. 53.5# S-95 <u>38</u> 40. TOTAL A TOTAL D В B JATOT TOTAL E TOTAL A TOTAL B

TOTAL C

TOTAL D

TOTAL E

TOTAL

PAGE

В

TOTAL C

PAGE 4 OF 5 FIELD NPR-4

TOTAL C

CASING TALLY DATE: March 17, 1977

	_ OF _5_			C,	ASING 1	FALLY		DATE:	March 17,	1977	
	NPR-4					Fish Cre	ek No. i	TALLY	FOR 9 5/8	CA	\SI#
JOINT ON	FIRST MEASU		CHECK MEASU		- ,	JOINT			CHECK MEASU		
		00'S	FEET	.00%	GR.	NO.	FEET	200°S	FEET	.00°5	GF
1	40	59		 	53.9# S-95	1		32		 	
2	38	76	_	 	1-1	2	38	12		ļ	
3	40	55		 	-	3		27	·	├ _;	ŀ
4	37	90			1	4	35	18			
5	32	20		-	-	5	40	38			
6	40	70		-	-	- 6	40	70	 		
7	36	33		ļ	↓ 	7	40	37_			}
8	36	44		_	- [8	40	51		-	ł
9	37	18		 	- 1	9	38	26		<u> </u>	ł
0	38	60			├		38	13			 _
FOTAL A	379	25			J	TOTAL D	390	24	<u> </u>	<u>L</u>	J
		. i				<u></u>				, ,	
1	40_	82		 	4 J	1	40	68			
- 2	40	.55		<u> </u>		2	41	27			
3	40	73			4	3	40	92			
- 4	40	69			1 1	4	37	79			
5	40	33				5	37	54			
6	41	14] [6	37	33			
7	35	96		_	[]	7	38	54			
	35	68]	8	37	70			
9	38	60]	9	33	48			
. 0	40	33	<u>-</u>			0	41	00			
TOTAL B	394	83				TOTAL E	386	25			_
1	40	34]	TOTAL A	379	25			
2	40	96				TOTAL B	394	83		-	
3	40_	80				TOTAL C	401	61		· · · · · · · · · · · · · · · · · · ·	
4	39	01				TOTAL D	390	24		<u> </u>	
5	40	54				TOTAL E.	386	25		-	
6	41	14				TOTAL		 			
. 7	40	68				PAGE	1952	18			
8	40	52									
9	40	38									

PAGE _5 OF _5

41

TOTAL C

CASING TALLY

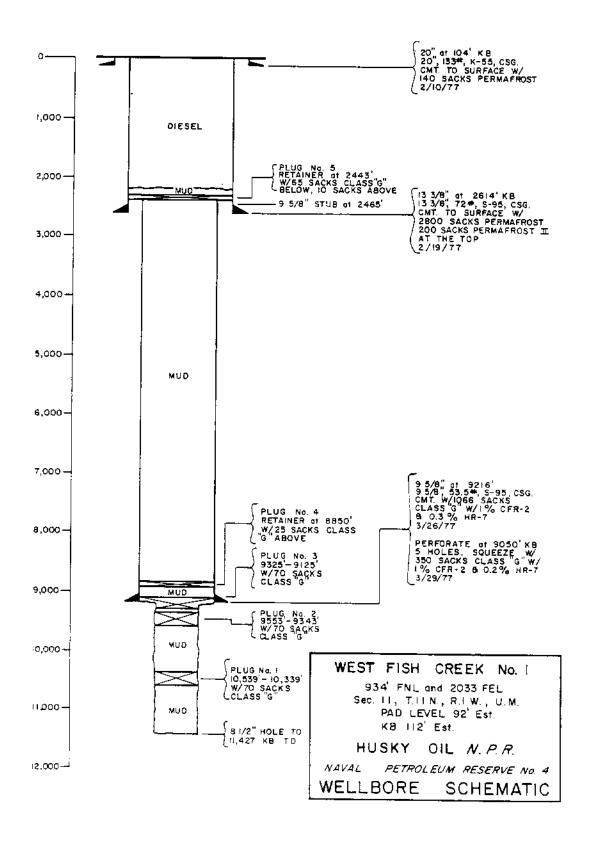
DATE: March 17, 1977

	_ OF _5_					TALLY		DATE:	March 17	<u> 1977</u>	
	NPR-4	·	LEASE &	WELL N	o. <u>Wes</u>	t Fish Cre					
JOINT NO.	FIRST MEASI	UREMENT DO'S	CHECK MEASO			TAIOL			CHECK MEASU		w
1		1	FEET	.00%	GA.	NO.	FEET	.00°S	FEET	00'S	GF
	39 39	74		 	53.5# S-99	1	40	88	<u> </u>	├	
<u>2</u> 3	39	 		\vdash	1 1	2	37	58	 	<u> </u>	-
4		15		ļ	1	3	41	23		├	-
	40	87		 	1	4	37	65	Landing J	pint_	ł
6	38	88				5	··	+		 -	
7	<u>37</u>	78		 	1	6		 			
8	35	24		 	1	7		 -		ļi	
9	40	56				8		 		 	
	41	08	<u> </u>			9		 		 	İ
TOTAL A		05		_		0	167	7/			<u> </u>
		, ,,	<u></u> .	<u> </u>	1	TOTAL D	157	34	_	<u> </u>	l
1	41	09				1	·· -		<u> </u>		
2	41	04				2		 			
3	41	23		_	1	3		 	·- ·- ·-		i I
4	38	58.			†	4		 			
5	40	92	·			5	· · · · · · · · · · · · · · · · · · ·	 			
6	38	18			1	6					
7	39	20		<u> </u>	1	7		- 			
8	40	56	·			8					
9	38	40				9		-		-	
0	40	82			1	0		 			
TOTAL B	400	02				TOTAL E		†			
			<u>'</u>					<u> </u>	<u></u>		
1	35	81				TOTAL A	393	05			
2	41	36	· ·			TOTAL B	400	02		- ∤	•
3	40	94				TOTAL C	398	47		——	
4	. 39	35				TOTAL D	157	34			
5	38	43				TOTAL E	**1	- "			
6	40	68				TOTAL	1016			\dashv	
7	37	59				PAGE	1346	88			
8	39	99			'						
		,			1						

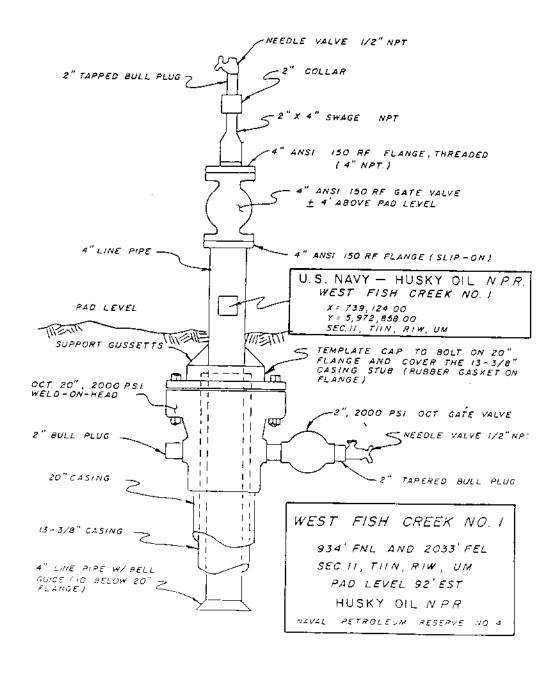
CASING OR LINER CEMENT JOB

Lease	NPR-4	<u> </u>		Well West	Fish Creek	No. 1	Date March	25, 1977
Size (Casing9	5/8"	s	etting Depth	9216'		Top (liner han	ger)
Hole	Size <u>12 1</u>	<u>/4</u> " м	lud Gradient _	0.60 psi/	ft (11.5 pr	og)	Viscosity	100
Casını	g Equipment							
How	co Float		shoe, Ho	owco		float locati	ed	
above	shoe, <u>@ </u>	9137'		_ (DV, FO) col	lars located at _			
			centralize	rs located	<u></u>			
	···		scratchers	located				
		ets, etc >	oe)		·· ————			
Cemer	nt (around sh	oe)						
	No. Sacks	Brand	Туре		Additives		Storre Weigh	,
(1)	1066	Portland	Class 'G'	17 CFR-2,	0.3%, HR-7			_ 193.25 Бъ
121 Cemer		V, FO) Cotlar a						··· .
	No	V, 1 07 COM2 2		101				
	Sacks	Brand	Туре		Additives		Slurr <u>Weigh</u>	*
13)								
7.5%								

Cementing Procedure (around shoe) (cross out where necessary)		
Circulated 100 bbls @ 5 8PM, pumped in 20	(barreis)	· · · · · · · · · · · · · · · · · · ·
water prewash, used bottom plug (yes, ea), r	mixed cement (1) above	
minutes, cement (2) above19.72	minutes, top plug (yes,	no) displaced with
646 (see fig.), (barrels) in 117.24 minut	es at rate of5.51	ВРМ, СЕМ,
(Burnard plug) (Did not bump plug). Final Pressure	1400	Reciprocated
pipe feet while (mixing) and (displacing) cer	nent. Displacing time	117.24
minutes. Had <u>RO</u>	circ	ulation (full, partial
none, etc.). Completed job at12:30 a.m.,	-	
Cementing Procedure (through (DV, FO) at	at where necessary)	
Opened (DV, FO) ata.m., p.m., circulated	bbis @	BPM, pumped in
(cu. ft.), (barrets)	prewash, mixed	f cement (3) above
minutes, cement (4) above	minutes, drappe	d closing plug, dis-
placed with (cu.ft.), (barrels) in	minutes at rate of	
BPM, CFM. (Bumped plug) (Did not bump plu	ug). Final Pressure	
Displacing time minutes. Had		circulation
(full, partial, none, etc.)		
Remarks (Third Stage Job, etc.)		
Lost returns while circulating prior to cementing	. Cemented with no r	eturns.
	h	
-		
	Foreman	



ABANDONMENT HEAD



RIG INVENTORY

Draw Works

National 130, Serial No. T-1442.

Hydromatic Brakes

Parkersburg, 60" SR, Serial No. 46544.

Catworks Unit

Compound and Rig Drive

National, 2,000 HP.

Drilling Engines

Caterpillar, D398, V12, 750 HP, Serial No. 66B2396. Caterpillar, D398, V12, 750 HP, Serial No. 66B2395. Caterpillar, D398, V12, 750 HP, Serial No. 66B2147.

Starting Engines

Delco, electrical, 24 volt, No. 1 Engine. Delco, electrical, 24 volt, No. 2 Engine. Delco, electrical, 24 volt, No. 3 Engine.

Sheds

PDL, steel, 8' x 32'. PDL, steel, 8' x 32'. PDL, steel, 8' x 32'.

Skids

Transmissions

Torque Clutches

Twin Disc, friction, 18", No. 1 Engine. Twin Disc, friction, 18", No. 2 Engine. Twin Disc, friction, 18", No. 3 Engine.

Rig Lights

Quartz, GE, 500 watt/1500 watt, vapor proof.

No. 1 Light Plant

Parker, steel, 7' x 8' x 36'.



No. 1 Engine

Caterpillar, diesel, D-343, Serial No. 62B6148.

No. 1 AC Generator

Caterpillar, Westinghouse, 219 KW, Serial No. 200TH175

No. 2 Light Plant

Parker, stee!, 7' x 8' x 36'.

No. 2 Engine

Caterpillar, diesel, D-343, Serial No. 62B6487.

No. 2 AC Generator

Caterpillar, AC, 219 KW, Serial No. 200TH1756.

No. 3 Light Plant

Parker, steel, 7' x 8' x 36'.

No. 3 Engine

Caterpillar, diesel, D-343, Serial No. 62B6489.

No. 3 AC Generator

Caterpillar, AC, 219 KW, Serial No. 200TH-1751.

Mast and Substructure

L. C. Moore, Jackknife, 136', 1,025M, Serial No. T1502.

Crown

L. C. Moore, 7 sheaves, 48".

Substructure

L. C. Moore, step down box, 18' x 29' x 38'.

Wire Line Anchor

National, 1-3/8", 80 ton.

No. 4 Light Plant

Parker, steel, 7' x 8' x 36'.

No. 4 Engine

Caterpillar, diesel, D-343, Serial No. 62B6470.

No. 4 Generator

Caterpillar, AC, 219 KW, Serial No. 200TH-1732.

Windwalls

Parker, steel, 8' x 20', Rig Floor. Parker, steel, Pump House and Pit Room.

Catwalks

Parker, steel, 8' x 40'.

Pipe Racks

Parker, steel drill pipe, 30'.

No. 1 Pump

EMSCO, duplex, DA850, Serial No. 113.

Power End

EMSCO, duplex, 850 HP, Serial No. 113.

Fluid End

EMSCO, forged steel duplex, 7-1/2" x 5,000#, Serial No. 113.

Pulsation Dampener

EMSCO, bladder, PD%, Serial No. 53.

No. 2 Pump

EMSCO, duplex, DB700, Serial No. 232.

Power End

EMSCO, duplex, 700 HP, Serial No. 232.

Fluid End

EMSCO, forged steel, $7-1/2" \times 5,000\#$, Serial No. 232.

Pulsation Dampener

EMSCO, bladder, PD3, Serial No. 37.



No. 5 Light Plant

Parker, steel, 8' x 36'.

No. 5 Engine

Caterpillar, diesel, D-343, Serial No. 62B6141.

No. 5 Generator

Caterpillar, AC, 219 KW, Serial No. 200TH1678.

Mud Pits

Parker, steel, 8' x 39'.

Mud Mixing Unit

Engine

Caterpillar, diesel, D-333, Serial No. 23C375.

Pump

Mission, centrifugal, 6' x 8'.

Lightening Mixers

Lightening, agitator, 7.5" x 36", Serial Nos: 721-326-4, 721-326-3, 721-326-6.

Desander

Swaco, two-cone, 1,000 GPM.

<u>Pump</u>

Mission, centrifugal, 6' x 8'.

Motor

Caterpillar, diesel, D-333, Serial No. 23C376.

Desilter

Swaco, six-cone, 1,000 GPM, 4" cone.

<u>Pump</u>

Mission, centrifugal, 6' x 8'.

Motor

Caterpillar, diesel, D-333, Serial No. 23C374.

Degasser

A: Drilco; B: Winco.

Pump

A: Gorman; B: Drilco.

Motor

GMC 6-71, diesel, 65 HP, Serial No. E69A6793N293.

Utility Skid

Parker, box, drill pipe, 8' x 25'.

Shale Shaker

Linkbelk, NRM, 4' x 8'.

<u>Motor</u>

Dayton, AC electric, 5HP; GE, AC electric, 5 HP.

Traveling Block

National, Ideal, 350 ton.

Hook

Byron-Jackson, UNI hour 4300, 350 ton.

<u>Swivel</u>

National, N-815, 350 ton.

Tongs-Nonpower

Byron-Jackson, B, 46".

Elevators

BJ, 5-7/16", 350 ton; Byron-Jackson, MGG, 5", 350 ton.

Elevator Bails

Byron-Jackson, forged steel, 350 ton.

Rotary Table

Ideco 1750, 350 ton. National, 20.5, 350 ton.

Master Bushings

Baash Ross, Hex. -

<u>Kelly</u>

Drilco, steel, 5-1/4".

Kelly Cock

Shaffer, 6-5/8" regular ball, 10,000 WP.

Air Compressor

Quincey, piston 390.

Motor

Marathon, electric, 10HP.

Air Hoist

Ingersoll Rand, K6U, 7,000#.

Drilling Lines

Tiger Brand, right lay, 1-3/8".

Steam Heater

Modine, steam, HS1285. Modine, steam, V-415.

Boilers

Cleaver, 4 Pass, 100 HP, Serial No. L47589. Brooks, Steam, Serial No. 2-L47588.

Hot Air Heaters

Tioga, DF18, 4200, Serial No. 125. Tioga, IDF21, 4600, Serial No. 1026.

Boiler House

Parker, steel, 8×40 .



Rotary Hose

Thordflow, rubber, 4" x 55'. Thordflow, steel, 7,500 psi.

Vibrator Hose

Thordflow, 10'.

Dog House

Parker, steel, insulated, 8' x 8' x 36'.

Sanitary Facility House

Parker, insulated, steel, 20' x 40' x 8', two sections.

Sewage Units

Metpro, IPC, 14000, Serial No. 6060-3. Comptro, diesel fired, 7500, Serial No. C-13 75.

Water Storage House

Parker, steel, ACS90 insulation, $8' \times 40'$, Serial No. 036350. State, 42 gallon.

Carrier heating system, Serial No. 29C72723.

Parts Storage House

Parker, electrical parts, 8' x 8' x 36'. Parker, rig parts, 8' x 8' x 36'.

Water Pump

Goulo, 2 HP.

Toolpusher Trailer House

Century, 2 HP.

Blowout Preventers

Shaffer, Single gate LWS, 13-5/8" x 5,000#.

Annular Preventer Shaffer, 13-5/8" x 5,000#.

Rotating Head

Gate Valves

Cameron, gate, 2" x 5,000#. Cameron, gate, 3" x 5,000#. Cameron, gate, 4" x 5,000#.

Flanges

Cameron, double studded, 4" x 3", 5,000#. OCT, double studded 3" x 2", 5,000#.

Drilling Spools

Shaffer, hub, 13-5/8" x 13-5/8", 5,000#.

Rams

Shaffer, rubber, Type 70, 2-7/8" x 5,000#. Shaffer, rubber, Type 70, 3-1/2" x 5,000#. Shaffer, rubber, Type 70, 4-1/2" x 5,000#. Shaffer, rubber, Type 70, 5" x 5,000#. Shaffer, Type 70, 7" x 5,000#.

Kill Line

Parker, Drill pipe, 20' x 5,000#.

Valves

Demco, gate, 4" x 5,000#. Demco, gate, 4" x 5,000#. Demco, gate, 2" x 5,000#.

Accumulator

Koomey, T1-5080-35, 4 stations, Serial No. 3389. Koomey, GERC-5, 4 stations, Serial No. 3389.

Water Tanks

Parker, steel insulated steam, 8' x 8' x 40'.

Fuel Tanks

Parker, steel, double wall, 8' x 8' x 40', 17,800 gallon.

Tong Torque Gauge

Martin Decker, 20,000#.

Rotary Torque Gauge

Martin Decker, 500 FTP.

Mud Pressure Gauge

Cameron, 0-5000, Type D.

Weight Indicator

Martin Decker. Cameron.

Auto Driller

Bear.

Welding Machine

Miller, electric, 300 amp, Serial No. HD719807. Lincoln, diesel, 200 amp, Serial No. 615826.

Motor.

Wire Line Unit

Halliburton, electric, 3-speed, Serial No. 805216. Motor, G.E., 7-1/2 HP.

Drill Pipe Slips

Baash Ross, DU, 5". Varco, SDU, 5".

Drill Collar Slips

Baash Ross, 6". Baash Ross, 8".

Subs

Three Saver Subs, 4-1/2" IF x 4-1/2" IF. Two 6-5/8" Reg. x 6-5/8" Reg. One 5" H90 \times 6-5/8" Reg. Two 4-1/2" IF x 4" H90. Two 4" H90 x 4-1/2" IF. One 4-1/2" IF x 4-1/2" IF. One 4-1/2" IF x 4-1/2" Reg. Two 6-5/8" Reg. x 4-1/2" IF. Two 4-1/2" IF x 6-5/8" Reg. One 5" H90 x 4-1/2" Reg. Two 6-5/8" Reg. x 7-5/8" Reg. Two 4-1/2" IF x 7-5/8" Reg. Two Junk Baskets, 4-1/2" Reg. x 4-1/2" Reg. Two Junk Baskets, 6-5/8" Reg. x 6-5/8" Reg. One 6-5/8" x 7-5/8" Req. One 4-1/2" Reg. x 4-1/2" Reg. One 4-1/2" Reg. x 6-5/8" Reg.



Rat Hole

Parker, steel, $9-5/8" \times 20'$.

Mouse Hole

Parker, steel, $7" \times 16'$.

Fire Extinguishers

Ansle, powder AB, K30.

